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Varthaman

MONTHLY CURRENT AFFAIRS MAGAZINE
BY RV TRAINING ACADEMY



AGASTHYAMALAI ELEPHANT RESERVE

Union Environment Ministry has announced 31st elephant reserve of India at Agasthyamalai in Tirunelveli district, Tamilnadu.

PARYUSHAN PARV

In the month of August or September Paryushan Parv (festival) is celebrated by Jain monks.

LAKE GARDA

Italy's largest lake, a popular tourist destination, has been severely affected by hot temperatures and a lack of significant rainfall for months.

PLACES OF WORSHIP ACT

The Act states that a place of worship's religious nature must remain the same as it was on August 15, 1947.

**CURRENT AFFAIRS
& PRACTICE QUESTIONS**

TEST SERIES TO ENHANCE PRELIMS 2023 PREPARATION

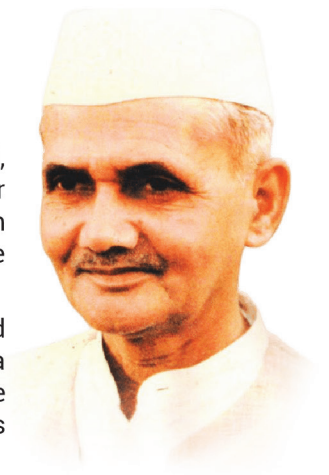
The Prelims exam is a decisive prerequisite in moving on to the next stage of Mains in UPSC. The Prelims exam is that stage in UPSC where the screening process is the most dynamic. One sure shot way of clearing the Prelims exam for an aspirant is through a vigorous Prelims Test Series. The RV Training Academy has put together a well-integrated Prelims Test Series to assist students in their Prelims Exam preparations.

Test series comprises of:

**Total 35 tests (6 NCERT Tests + 11 Sectional Tests + 4
Current Affairs Tests + 4 CSAT Tests + 10 Full Length Tests)**

- 01 NCERT Test Series**
- 02 Sectional Test Series**
- 03 CSAT Test Series**
- 04 Current Affairs Test Series**
- 05 Simulation Test Series / Full Length Tests**

SHRI LAL BAHADUR SHASTRI



Lal Bahadur was born on 2 October in the year 1904 in Ram Nagar, Ahmedabad Mughalsarai, United Provinces, British India as Lal Bahadur Shrivastav. His father was a school teacher who died when Lal Bahadur Shastri was only a year and half old. Lal Bahadur's small town schooling was not remarkable in any way but he had a happy enough childhood despite the poverty that dogged him.

As a boy, Lal Bahadur loved reading books and was fond of Guru Nanak's verses. He revered Bal Gangadhar Tilak, the Indian nationalist, social reformer and freedom fighter. After hearing a speech of Mahatma Gandhi at Varanasi in 1915, he dedicated his life to the service of the country. He also dropped his surname Shrivastav, as it indicated his caste and he was against the caste system.

During the non-cooperation movement of Mahatma Gandhi in 1921, he joined processions in defiance of the prohibitory order. He was arrested but let off as he was a minor. He then enrolled at the nationalist Kashi Vidyapeeth in Varanasi. Among the first students of the new institution, Shastri graduated with a first-class degree in philosophy and ethics from the Vidyapith in 1925. He was given the title Shastri ("Scholar"). The title was a bachelor's degree awarded by the Vidyapeeth, but it stuck as part of his name.

In 1928, Shastri became an active and mature member of the Indian National Congress at the call of Mahatma Gandhi. He was imprisoned for two and a half years. Later, he worked as the Organizing Secretary of the Parliamentary Board of U.P. in 1937. In 1940, he was sent to prison for one year, for offering individual Satyagraha support to the independence movement.

On 8 August 1942, Mahatma Gandhi issued the Quit India speech at Gowalia Tank in Bombay, demanding that the British leave India. Shastri, who had just then come out after a year in prison, travelled to Allahabad. For a week, he sent instructions to the independence activists from Jawaharlal Nehru's home, Anand Bhavan. He served as an elected representative for United Provinces in 1937 and 1946. Following India's independence, Shastri was appointed Parliamentary Secretary in his home state, Uttar Pradesh. He became the Minister of Police and Transport under Govind Ballabh Pant's Chief Ministership on 15th August 1947. As the Transport Minister, he was the first to appoint women conductors. As the minister in charge of the Police Department, he ordered that police use water jets instead of lathis to disperse unruly crowds. His tenure as police minister (as Home Minister was called prior to 1950) saw successful curbing of communal riots in 1947, mass migration and resettlement of refugees.

In 1951, Jawaharlal Nehru nominated him to the Rajya Sabha. He served as the Minister of Railways and Transport in the Central Cabinet from 1951 to 1956. In 1956, he offered his resignation after a railway accident at Mahbubnagar it led to 112 deaths. However, Nehru did not accept his resignation. Three months later, he resigned accepting moral and constitutional responsibility for a railway accident at Ariyalur in Tamil Nadu that resulted in 144 deaths. While speaking in the Parliament on the incident, the then Prime Minister, Jawaharlal Nehru, stated that he was accepting the resignation because it would set an example in constitutional propriety and not because Shastri was in any way responsible for the accident. Shastri's unprecedented gesture was greatly appreciated by the citizens. He served as the Minister of Commerce and Industry in 1959 and Minister of Home Affairs in 1961. Shastri laid the foundation of Mangalore Port in 1964 as a minister without a portfolio.

Jawaharlal Nehru died in office on 27th May 1964 and left a void. The then Congress Party President K. Kamaraj was instrumental in making and installing Shastri as Prime Minister on 9th June. In his first broadcast as Prime Minister, on 11th June 1964, Shastri stated: "There comes a time in the life of every nation when it stands at the cross-roads of history and must choose which way to go. But for us there need be no difficulty or hesitation, no looking to right or left. Our way is straight and clear – the building up of a socialist democracy at home with freedom and prosperity for all, and the maintenance of world peace and friendship with all nations."

During the 22-day war with Pakistan, Lal Bahadur Shastri created the slogan of "Jai Jawan Jai Kisan" ("Hail the soldier, Hail the farmer"), underlining the need to boost India's food production. Apart from emphasizing the Green Revolution, he was instrumental in promoting the White Revolution. The National Dairy Development Board was formed in 1965 during his tenure as Prime Minister.

Shastri's greatest moment came when he led India in the 1965 Indo-Pak War. Laying claim to half the Kutch peninsula, the Pakistani army skirmished with Indian forces in August 1965. The Indo-Pak war ended on 23rd September 1965 with a United Nations-mandated ceasefire. After the declaration of ceasefire, Shastri and Pakistani President Muhammad Ayub Khan attended a summit in Tashkent (former USSR, now in modern Uzbekistan), organized by Kosygin. On 10th January 1966, Shastri and Khan signed the Tashkent Declaration. The next day Shastri, who had suffered two heart attacks earlier, died supposedly of a heart attack. He was the only Indian Prime Minister, and indeed probably one of the few heads of government, to have died in office overseas.

Shastri was known for his honesty and humility throughout his life. He was posthumously awarded the Bharat Ratna, and a memorial "Vijay Ghat" was built for him in Delhi. Several educational institutes bear his name.

Purpose of the magazine

The purpose of Varthaman is to focus solely on issues which are relevant to the actual as well as applied aspects of the General Studies syllabus. The unique way the "Varthaman" team puts forward the facts and analysis would help you understand, retain and reproduce the information during the journey towards toppers' list.

The sources relied for selection and application of issues

The Hindu
The Indian Express
Times of India
PIB
Live Mint
Hindustan Times
News on Air
Prasar Bharati website
IDSA Website
NASA website
PRS India Website
Down to Earth
Rajya Sabha tv website
Lok Sabha tv website
Economic and Political Weekly
Yojana
Kurukshetra
NITI Aayog reports
BBC

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Features of the magazine

Current Affairs Analysis

- This month's edition covers the analysis of news from the immediately preceding month.
- The news are categorized subject wise viz. Polity, Economics, Environment & Ecology, Science & Technology, International Relations, etc. for easy and efficient study.
- Lead articles on burning issues are included.

Practice Questions

- Prelims Practice Questions
- Mains Practice Questions

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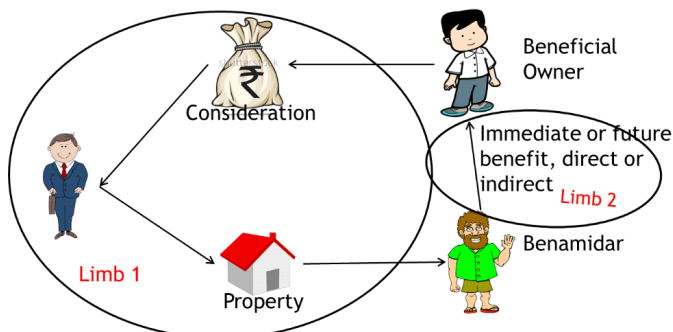
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BENAMI TRANSACTION ACT

In News: Supreme court has stricken down the two provisions of Prohibition of Benami Property Transactions Act, 1988.



More on the Topic:

About Benami Transaction Act:

- Introduced in 1988, the Benami Transactions (Prohibition) Act prohibits Benami transactions and gives the government the right to recover Benami property.
- According to the act, a Benami transaction is a transaction "where a property is transferred to or is held by, a person, and the consideration for such property has been provided, or paid by, another person".
- It also includes transactions where "the property is held for the immediate or future benefit, direct or indirect, of the person who has provided the consideration."
- According to the law, the Centre can confiscate any property that has been tagged as a Benami property.
- Cash and sensitive information can also be termed as 'property' under the act.

The 2016 Amendment:

- 2016 amendment expanded scope and punishment for benami transactions and also added a provision for confiscation of the property obtained as result of benami transaction.
- The new punishment was also being applied retrospectively to the transactions that took place before 2016.
- SC ruled that the Section 3(2) of 1988 Act (accordingly of 2016 act also) is unconstitutional for being arbitrary and violative of Article 20(1) of Constitution (prohibits retrospective punishment for a crime).
- SC stated that the provisions under section 3 are 'unduly harsh' and declared them unconstitutional.
- The provisions under section 5, which allows the government to confiscate the property, were also declared unconstitutional and they were 'half-baked'.

FOOD SECURITY ACT

In News: The Supreme Court has directed the Government of India to increase coverage under the National Food Security Act (NFSA) so that "more and more needy persons/citizens get the benefit" under NFSA.



The National Food Security Act 2013

More on the Topic:

- The SC reiterated the need to ensure registration of unorganised sector workers, emphasizing that the purpose and need for registration is to ensure that they are able to access benefits under various welfare schemes and policies.

About Food Security Act:

- The National Food Security Act, 2013 was notified to provide food and nutritional security.
- The objective of the Act is to provide for food and nutritional security in the human life cycle approach, by ensuring access to an adequate quantity of quality food at affordable prices to people to live a life with dignity.

Provisions of the Act:

- The Act provides for coverage of up to 75% of the rural population and up to 50% of the urban population for receiving subsidized foodgrains under the Targeted Public Distribution System (TPDS), thus covering about two-thirds of the population.
- The eligible persons will be entitled to receive 5 Kgs of food grains per person per month at subsidized prices of Rs. 3/2/1 per Kg for rice/wheat/coarse grains.
- The existing Antyodaya Anna Yojana (AAY) households, which constitute the poorest of the poor, will continue to receive 35 Kgs of foodgrains per household per month.
- Corresponding to the all-India coverage of 75% and 50% in the rural and urban areas, State-wise coverage is determined by the Central Government.
- The work of identification of eligible households is to be done by States/UTs.
- Pregnant women and lactating mothers and children in the age group of 6 months to 14 years are entitled to meals as per prescribed nutritional norms under Integrated Child Development Services (ICDS) and Mid-Day Meal (MDM) schemes.
- Children up to 14 years of age are entitled to nutritious meals as per the prescribed nutritional standards. In case of non-supply of entitled food grains or meals, the beneficiaries will receive a food security allowance.
- Besides meals to pregnant women and lactating mothers during pregnancy and six months after childbirth, such women are entitled to receive maternity benefits of not less than Rs. 6,000.
- The eldest woman of the household age 18 years or above be the head of the household to issue ration cards.
- Grievance redressal mechanism at the District and State levels. States will have the flexibility to use the existing machinery or set up separate mechanisms.

FIFA SUSPENSION

In News: Supreme court has dissolved football committee of administrators and paved way for FIFA to lift suspension.



More on the Topic:

Context:

- FIFA the apex body of football has suspended the country's top administrative organisation, the All India Football Federation, for "undue influence from third parties" recently.
- The Bureau of the FIFA council, which passed the judgment, also took away the country's rights to hold the FIFA U-17 Women's World Cup 2022, which was scheduled to be held from October 11-30.

What events led to the ban?

- The current set of troubles for Indian football began after the erstwhile AIFF president, Praful Patel, who was also a FIFA council member, refused to relinquish his post as the head of football in the country.
- His excuse for not exiting the stage was the long-drawn out pandemic, coupled with a court case regarding the AIFF constitution.
- But in May 2022, the Supreme Court intervened, and removed Patel from his post. The SC also appointed a Committee of Administrators (COA) to run the AIFF. The setting up of this COA is where the contentious relationship with FIFA began, which eventually led to the ban.

Effects of the Suspension:

- The suspension meant, firstly, no international football and this applies to all national teams, across all age groups.
- It also applied to both men's and women's football, and to all club teams in India.
- The suspension also impacted international transfers, as well as any courses or developmental programs that AIFF officials could, or were taking part in.

India - Sports Governance Troubles:

- Unclear roles and responsibilities among governance bodies and office bearers.
- Quality coaching staff is not available.
- Politicians or businessmen are interfering in sports and leads to lack of professionalism.
- Elections are not happening regularly.

- Poor Accountability and Transparency.

LEGAL AID DEFENSE COUNSEL SYSTEM (LADCS)

In News: Chief Justice of India recently launched Legal Aid Defense Counsel System (LADCS) system.

More on the Topic:

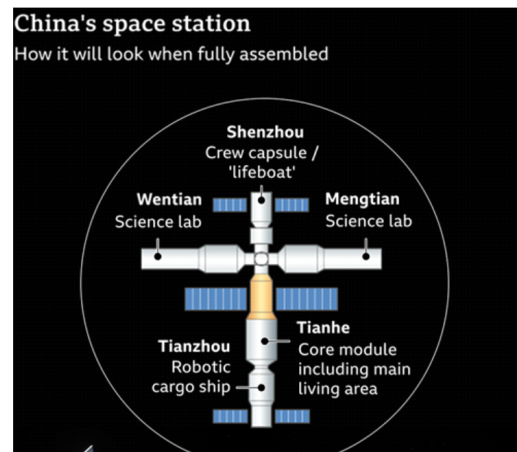
- It intends to provide free legal aid to poor people facing criminal cases to defend themselves during trial.
- It will have full-time legal aid lawyers in 365 district legal services authorities across India.
- It is funded by National Legal Services Authority (NALSA).
- It is in line with the 'Public Defender System'. A public defender is a lawyer appointed by the government to represent and advise those who cannot afford to hire a private advocate.

National Legal Services Authority of India:

- National Legal Services Authority of India was formed in 1995 under the authority of the Legal Services Authorities Act 1987.
- Its purpose is to provide free legal services to eligible candidates, and to organize Lok Adalats for speedy resolution of cases.
- It monitors and reviews the effectiveness of legal aid programs and to develop rules and principles for providing legal services under the Act.

SPECTROGRAPHIC INVESTIGATION OF NEBULAR GAS (SING)

In News: India-China dispute may affect space project Spectrographic Investigation of Nebular Gas (SING).



More on the Topic:

- The project includes Indian astrophysicists ambitious project to install an Indian-made spectroscope aboard the developing Chinese space station Tiangong.
- Indian astrophysicists have been involved in an ambitious project to install an Indian-made spectroscope aboard the developing Chinese space station Tiangong.
- India and China have been collaborators in the past on research projects such as the Giant Metre Wave Radio Telescope, a Pune-based observatory that's employed by astrophysicists across the world to study radiation at

metre-scale resolutions to observe and analyse stars and galaxies.

Tiangong Space Station:

- The space station will operate in **low-Earth orbit** at an altitude of 340-450 km above Earth's surface.
- Tiangong, which means "heavenly palace", is expected to become fully operational by the end of the year and is set to be operational for at least 10-15 years.
- The low orbit space station would be providing round the clock bird's-eye view for its astronauts on the rest of the world.
- It will help China's aim to become a major space power by 2030.
- It replicates the International Space Station (ISS), from which China was excluded.

CENTRAL VIGILANCE COMMISSION

In News: Vigilance Commissioner Suresh N Patel was appointed as the Central Vigilance Commissioner.



CENTRAL VIGILANCE COMMISSION

More on the Topic:

- Central Vigilance Commission (CVC) was mainly created to address governmental corruption and to advise the central government in the field of surveillance.
- The Commission consists of: A Central Vigilance Commissioner as Chairperson and
- Not more than two Vigilance Commissioners as Members
- **President of India appoints CVC members** by warrant under his hand and seal after the recommendation by a three-member committee of Prime Minister, Minister of Home Affairs (MHA) and Leader of Opposition in Lok Sabha.
- The term of the Office of the vigilance commissioners is four years or if they attain 65 years of age (whichever is earlier)
- After they retire, they are not eligible for reappointment in any central or state government agency.
- **The CVC is not controlled by any Ministry/Department.** It is an independent body which is only responsible to the Parliament.

NATIONAL LEGAL SERVICE AUTHORITY

In News: Prime Minister has addressed inaugural session of first all India district legal services authorities (DLSAs) meet under NALSA.



NALSA

NATIONAL LEGAL SERVICES AUTHORITY

More on the Topic:

- The National Legal Services Authority (NALSA) has been constituted under the Legal Services Authorities Act, 1987 to provide free Legal Services to the weaker sections of the society.
- It also organizes Lok Adalats for amicable settlement of disputes.
- It monitors and reviews various legal aid programs. It provides rules and principles for legal services under the Act.
- It also distributes funding and grants to state legal services authorities and non-profit organisations to help them execute legal aid systems and initiatives.
- The Chief Justice of India is the Patron-in-Chief. NALSA is housed at Supreme Court of India.

What are SLSA and DLSA?

- In every State, **State Legal Services Authority** has been constituted to give effect to the policies and directions of the NALSA.
- It aims to give free legal services to the people and conduct Lok Adalats in the State.
- The State Legal Services Authority is headed by **Hon'ble the Chief Justice of the respective High Court** who is the Patron-in-Chief of the State Legal Services Authority.

What are District Legal Service Authorities?

- Similarly, in every District, **District Legal Services Authority** has been constituted to implement Legal Services Programmes in the District.
- There are a **total of 676 DLSAs** in the country. They are headed by District Judge who acts as Chairman of DLSA.
- DLSAs also contribute towards **reducing burden on courts by regulating Lok Adalats** conducted by National Legal Services Authority.

What are the objectives of Legal Services Authorities?

- Provide free legal aid and advice.
- Spread legal awareness.
- Organise lok adalats.

What are various Constitutional provisions related to NALSA?

- **Article 39A of the Constitution of India:** It provides that State shall secure that the operation of the legal system promotes justice on a basis of equal opportunity, and shall in particular, provide free legal aid, by suitable legislation or schemes or in any other way, to ensure

that opportunities for securing justice are not denied to any citizen by reason of economic or other disability.

- **Articles 14 and 22(1)** also make it obligatory for the State to ensure equality before law and a legal system that promotes justice on a basis of equal opportunity to all.

NATIONAL ANTI-DOPING BILL

In News: The Lok Sabha has passed the National Anti-Doping Bill in an effort to put a halt to doping in sports.



More on the Topic:

Details of the Bill:

- The Bill prohibits athletes, athlete support personnel, and other persons from engaging in doping in sport.
- **Violation of anti-doping rules may result in disqualification of results** including forfeiture of medals, points and prizes, ineligibility to participate in a competition or event for a prescribed period, and financial sanctions.
- **Converting NADA as Statutory Body:** Currently, anti-doping rules are implemented by the National Anti-Doping Agency (NADA), which was established as a society.
- The Bill provides for constituting NADA as a statutory body headed by a Director General appointed by the central government. Functions of the Agency include planning, implementing and monitoring anti-doping activities, and investigating anti-doping rule violations.
- **The National Board for Anti-Doping:** The National Board for Anti-Doping in Sports will be established to make recommendations to the government on anti-doping regulations and compliance with international commitments on anti-doping.
- The Board will oversee the activities of NADA and issue directions to it.
- **National Anti-Doping Disciplinary Panel:** The Board will constitute a National Anti-Doping Disciplinary Panel for determining consequences of anti-doping rule violations. Further, the Board will constitute a National Anti-Doping Appeal Panel to hear appeals against decisions of the Disciplinary Panel.

Issues in the Bill:

- The qualifications of the Director General are not specified in the Bill and are left to be notified through Rules.
- Discretion to the central government to remove the

Director General. It may affect the independence of the Director General.

Context of the Bill:

- Doping is the consumption of certain prohibited substances by athletes to enhance performance.
- In 1999 the World Anti-Doping Agency (WADA) was set up under the International Olympic Committee.
- WADA is recognised by the UNESCO International Convention against Doping in Sport (2005).
- WADA's primary role is to develop, harmonise, and coordinate anti-doping regulations across all sports and countries.
- WADA requires countries to have a National Anti-Doping Organisation for enforcing anti-doping rules.
- The anti-doping process in India is managed by the National Anti-Doping Agency (NADA).
- NADA was established as an autonomous body under the Societies Registration Act, 1860 in November, 2009

PLACES OF WORSHIP ACT

In News: Supreme Court has clarified that the 1991 Places of Worship Act cannot be brought into play in a battle between two sects of the same religion. SC refused to entertain a petition by a sect of the Jain community alleging conversion of its religious places by another sect.



More on the Topic:

- The Supreme Court refused to entertain a plea filed under Article 32 of the Constitution by members of the two denomination of the Jain religion seeking to enforce the Places of Worship (Special Provisions) Act 1991 against the alleged conversion of places of worship by another segment of the same denomination.

About Places of Worship Act:

- The Act states that a place of worship's religious nature must remain the same as it was on August 15, 1947.
- It says no person shall convert any place of worship of any religious denomination into one of a different denomination or section.
- **Section 3 of the act bars conversion**, in full or part, of a place of worship of any religious denomination into a place of worship of a different religious denomination or even a different segment of same the religious denomination.
- It declares that all litigation, appeals, or other proceedings ongoing before any court or authority on August 15, 1947, involving converting the status

of a place of worship, will cease as soon as the law takes effect. There will be no more legal action taken.

- Ancient and historical monuments and archaeological sites and remains that are covered by the Ancient Monuments and Archaeological Sites and Remains Act, 1958. Is an exception.

DEFENCE ACQUISITION COUNCIL

In News: DAC has approved arms procurement proposals worth Rs 28,732 crore under Buy Indian-IDDMM (Indigenously Designed, Developed and Manufactured) categories to boost 'Aatmanirbharta' in Defence.



More on the Topic:

- An overarching structure, the Defence Acquisition Council (DAC), under the Defence Minister was constituted for overall guidance of the defence procurement planning process.
- It is the highest decision-making body in the Defence Ministry for deciding on new policies and capital acquisitions for the three services (Army, Navy and Air Force) and the Indian Coast Guard.
- Minister of Defence is the Chairman of the Council.

ESSENTIAL COMMODITIES ACT, 1955

In News: The Department of Consumer Affairs issued a directive to all the States and UTs to enforce stock disclosure by stockholders of tur under the Essential Commodities Act, 1955.

More on the Topic:

- This measure has been taken due to the slow progress in Kharif sowing as compared to last year due to excess rainfalls and water logging conditions in parts of major Tur growing states of Karnataka, Maharashtra and Madhya Pradesh.
- This has been done to prevent shortage and stocking of tur in the backdrop of low production due to excess rainfalls and water logging in Tur growing states (Karnataka, Maharashtra, MP).

Essential Commodities Act:

- The Essential Commodities Act is an act of the Parliament of India that was established to ensure the delivery of certain commodities or products, the supply of which, if obstructed due to hoarding or black marketing, would affect the normal life of the people. This includes foodstuff, drugs, fuel etc.

- An act to provide, in the interest of the general public, for the control of the production, supply and distribution of, and trade and commerce, in certain commodities.
- There is no specific definition of essential commodities in the EC act. The list of EC is specified in the "Schedule" of this Act by the central government.

FOREIGNERS TRIBUNALS

In News: Foreigners Tribunals across Assam couldn't function effectively due to the lack of infrastructure.



More on the Topic:

Details of the Bill:

- They are established under the provisions of the Foreigners Act 1946 and Foreigners (Tribunals) Order 1964.
- They are quasi-judicial bodies; their main function is to determine whether a person staying illegally is a "foreigner" or not. Only Foreigners' Tribunals can declare a person as a foreigner.
- Any Person, whose name is not in the final published list of the National Register of Citizens (NRC), can represent their case in Foreigners Tribunals (FT).
- Each Foreigners Tribunal Member is appointed as per the guidelines issued by the government.
- **Composition:** Advocates not below the age of 35 years of age with at least 7 years of practice (or) Retired Judicial Officers from the Assam Judicial Service (or) Retired IAS of ACS Officers (not below the rank of Secretary/Addl. Secretary) having experience in quasi-judicial works.
- **Who can set up a Foreign Tribunal:** The Ministry of Home Affairs (MHA) has amended the Foreigners (Tribunals) Order, 1964, and has empowered district magistrates in all States and Union Territories to set up tribunals (quasi-judicial bodies) to decide whether a person staying illegally in India is a foreigner or not.
- Earlier, the powers to constitute tribunals were vested only with the Centre.
- The amended order (Foreigners (Tribunal) Order, 2019) also empowers individuals to approach the Tribunals.
- Earlier, only the State administration could move the Tribunal against a suspect.

CABINET SECRETARY

In News: The Appointments Committee of the Cabinet (ACC) headed by the Prime Minister has extended the tenure of present Cabinet Secretary Rajiv Gauba for one year.

More on the Topic:

- The Cabinet Secretary is under the direct charge of the Prime Minister.
- The Cabinet Secretary is the top-most executive official and senior-most civil servant of the Government of India.
- The Cabinet Secretary is the ex-officio head of the Civil Services Board.
- The administrative head of the Cabinet Secretariat.
- Works under the direct charge of the Prime Minister.
- He is responsible for the administration of the Transaction and Business rules and Allocation of business rules.
- He ensures that the President, Vice President and Ministries are kept informed of the major activities of all Ministries/Departments by means of a monthly Summary of their Activities.
- Manage the major crises in the country and Coordinate activities of various Ministries in such a situation.

DECLARATION OF MINORITIES AT DISTRICT LEVEL NOT ACCORDING TO LAW

In News: The Supreme Court has observed that it cannot entertain a prayer to identify religious and linguistic minorities at district level, as it is contrary to the precedents which hold that such identification must be carried out at State level.



More on the Topic:

- The bench also pointed out that in the Kerala Education Bill case(1958), the Court had rejected the argument that minorities should be identified at block level or district level.
- In the TMA Pai Case, The SC had said that **for the purposes of Article 30** that deals with the rights of minorities to establish and administer educational institutions, religious and linguistic minorities have to be considered state-wise.
- In 2005, the SC in its judgement in '**Bal Patil**' referred to the TMA Pai ruling.
- The legal position clarifies that henceforth the unit for determining status of both linguistic and religious

minorities would be 'state'.

Constitutional Provisions Related to Minorities:

- **Article 29:** It provides that any section of the citizens residing in any part of India having a distinct language, script or culture of its own, shall have the right to conserve the same.
- It grants protection to both religious minorities as well as linguistic minorities.
- The SC held that the scope of this article includes minorities as well as the majority.
- **Article 30:** All minorities shall have the right to establish and administer educational institutions of their choice.
- The protection under Article 30 is confined only to minorities (religious or linguistic) and does not extend to any section of citizens (as under Article 29).
- **Article 350-B:** The 7th Constitutional (Amendment) Act 1956 inserted this article which provides for a Special Officer for Linguistic Minorities appointed by the President of India.
- It would be the duty of the Special Officer to investigate all matters relating to the safeguards provided for linguistic minorities under the Constitution.

INDIAN CYBER CRIME COORDINATION CENTRE (I4C)

In News: I4C's Quarterly Newsletter "CyberPravah" was released by the Ministry of Home Affairs (MHA).

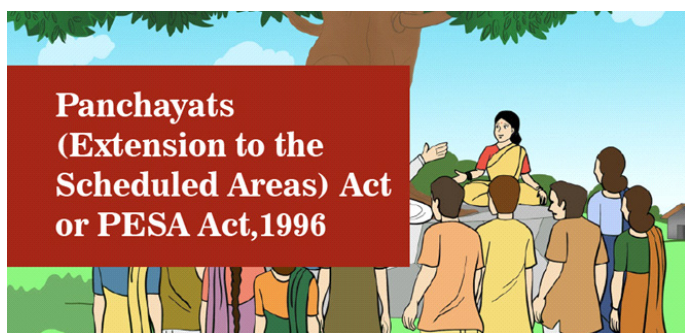


More on the Topic:

- The Indian Cyber Crime Coordination is a government initiative to deal with cybercrime in India, in a coordinated.
- The I4C will assist in centralising cyber security investigations, prioritise the development of response tools and bring together private companies to contain the menace.

THE PESA ACT

In News: Aam Aadmi Party (AAP) at Gujarat included "strict implementation" of The Panchayats (Extension to the Scheduled Areas) Act (PESA Act) in its election promises.



More on the Topic:

- The PESA Act was enacted in 1996 "to provide for the extension of the provisions of Part IX of the Constitution relating to the Panchayats to the Scheduled Areas".
- (Other than Panchayats, Part IX, comprising Articles 243-243ZT of the Constitution, contains provisions relating to Municipalities and Cooperative Societies.)

Why PESA Act was enacted?

- The PESA Act was enacted to ensure self-governance through Gram Sabhas (village assemblies) for people living in the Scheduled Areas.
- It recognises the right of tribal communities, who are residents of the Scheduled Areas, to govern themselves through their own systems of self-government, and also acknowledges their traditional rights over natural resources.
- In pursuance of this objective, the Act empowers Gram Sabhas to play a key role in approving development plans and controlling all social sectors.
- This includes the processes and personnel who implement policies, exercising control over minor (non-timber) forest resources, minor water bodies and minor minerals, managing local markets, preventing land alienation and regulating intoxicants among other things.
- State governments are expected to amend their respective Panchayati Raj Acts without making any law that would be inconsistent with the mandate of PESA.
- However, implementation of the PESA Act depends on the State-specific rules and so far, only 7 states have notified these Rules.

NITI AAYOG GOVERNING COUNCIL

In News: Prime Minister Narendra Modi has chaired the seventh NITI Aayog Governing Council meeting.



More on the Topic:

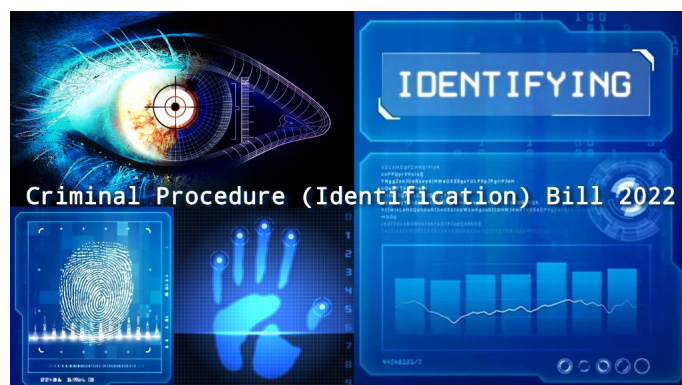
- The council held discussions over several issues such as crop diversification, urban development, implementation of the National Education Policy (NEP), and urban governance.

About NITI Aayog's Governing Council:

- The Governing Council of NITI Aayog comprises Prime Minister of India; Chief Ministers of all the States and Union Territories with legislature; Lt Governors of other UTs; Ex-Officio Members; Vice Chairman, NITI Aayog; Full-Time Members, NITI Aayog; and Special Invitees.
- It is the premier body tasked with evolving a shared vision of national priorities and strategies, with the active involvement of States, in shaping the development narrative.
- The Governing Council, which embodies the objectives of cooperative federalism, presents a platform to discuss inter-sectoral, inter-departmental and federal issues to accelerate the implementation of the national development agenda.

CRIMINAL PROCEDURE IDENTIFICATION ACT

In News: The Criminal Procedure (Identification) Act, 2022 has come into effect.



More on the Topic:

- The new act authorises taking measurements of convicts and other persons for the purposes of identification and investigation in criminal matters and to preserve records.
- It provides legal sanction for taking appropriate body measurements of persons who are required to give such measurements.
- This include finger-impressions, palm-print and foot-print impressions, photographs, iris and retina scan, physical, biological samples and their analysis among others.
- The act also empowers the National Crime Records Bureau of India to collect, store and preserve the record of measurements and for sharing, dissemination, destruction and disposal of records.
- Under the act, the Police or Prison Officers have been given power to take measurements of any person who resists or refuses to give measurements.
- Resistance or refusal to give details will be considered an offence under IPC, 1860.

Issues to consider:

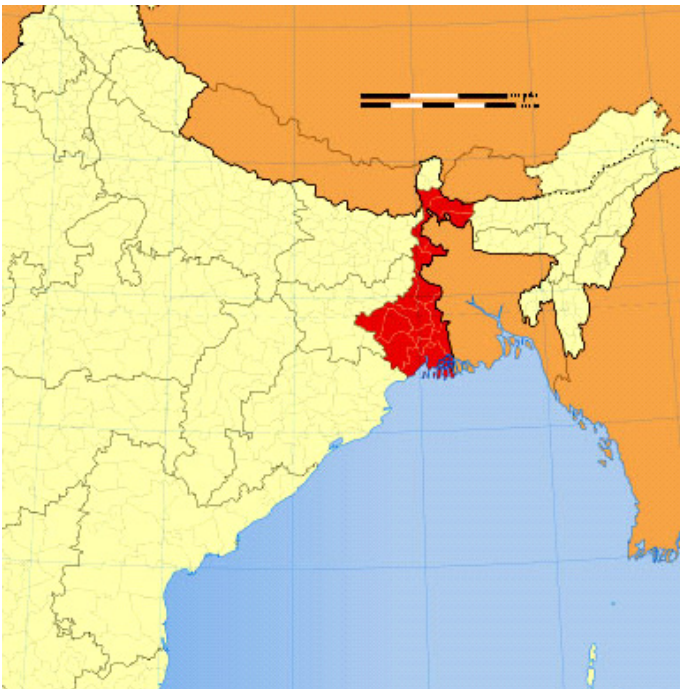
- Bill may violate the Right to Privacy as well as Equality

because of the following reasons:

- (a) data can be collected not just from convicted persons but also from persons arrested for any offence and from any other person to aid an investigation;
- (b) the data collected does not need to have any relationship with evidence required for the case;
- (c) the data is stored in a central database which can be accessed widely and not just in the case file;
- (d) the data is stored for 75 years (effectively, for life); and
- (e) safeguards have been diluted by lowering the level of the official authorised to collect the data.

CREATION OF NEW DISTRICTS

In News: The West Bengal cabinet has approved the creation of seven new districts in the state.



More on the Topic:

- The Decision on creating or scrapping districts, or changing their boundaries:
- This power lies with the state governments, who can pass a law in the Assembly or simply issue an order and notify it in the gazette. The Centre does not have a say in the matter.

Why new Districts are created?

- States keep creating new districts from time to time.
- The idea everywhere is, generally, that smaller units would make governance easier and would benefit the people by bringing the government and the administration closer to them, and making them more accessible.
- Sometimes, the decision to create a new district is driven by local demands.

GOVERNMENT SCHEMES

MGNREGA SCHEME

In News: MGNREGA workers from across the country organised a 3 days protest at the national capital's Jantar Mantar, and they claimed that they hadn't been paid for months.



More on the Topic:

- Work demand is dropping at a steep rate as the scheme has failed the promise to pay wages within the stipulated time in many parts of the country.
- The central government cited discrepancies in several state districts and did not allocate any funds during the budget in 2022-23.
- Glitches in the digital attendance system had worsened the situation for them.

The Cause of Distress:

- Recently the central government has introduced the mandatory implementation of national mobile monitoring system for the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA).
- The National mobile monitoring system was initiated to capture the attendance through the mobile system at worksites with more than 20 workers.
- The new system has resulted in the delay of wage payments to workers. The new system was launched without addressing various technical issues such as inability to upload attendance data.
- After the implementation of the Public Financial Management System, it is necessary to release funds through a single account for the State MGNREGA, this has also complicated matters.

About MGNREGA:

- National Rural Employment Guarantee Act 2005 or NREGA, later renamed as the Mahatma Gandhi National Rural Employment Guarantee Act or MGNREGA in 2009, is an Indian labour law and social security measure that aims to guarantee the 'right to work'. This act was passed in 2005.

- It aims to enhance livelihood security in rural areas by providing at least 100 days of wage employment in a financial year to at least one member of every household whose adult members volunteer to do unskilled manual work.
- Women are guaranteed one third of the jobs made available under the MGNREGA.
- Another aim of MGNREGA is to create durable assets (such as roads, canals, ponds and wells).
- Employment is to be provided within 5 km of an applicant's residence, and minimum wages are to be paid. If work is not provided within 15 days of applying, applicants are entitled to an unemployment allowance.
- Employment under MGNREGA is a legal entitlement.

UTKARSH PAHAL SCHEME

In News: The Prime Minister has recently praised the Bharuch district administration and the Gujarat Government for covering 100 percent beneficiaries in the district under four national schemes through Utkarsh Pahal Scheme

More on the Topic:

- Surat enrolled 100 percentage beneficiaries under four schemes – Indira Gandhi Rashtriya Vrudhhavasta Pension Yojana (IGRPY), Niradhar Vrudh Sahay Yojana (NVSY), Ganga Swaroop Arthik Sahay Yojana (GSASY) and Rashtriya Kutumb Sahay Yojana (RKSJ).
- The campaign saw the coming together of local political leaders and their team, the district administration and Industry association.

CHEERAG SCHEME

In News: The state government of Haryana has recently launched the Cheerag scheme to provide “free education” to Economically Weaker Section (EWS) students of government schools in the “budget” of private schools.



More on the Topic:

- Cheerag Scheme stands for, “Chief Minister Equal Education Relief, Assistance and Grant”.
- Under the scheme, government school students whose parent's annual income is less than Rs 1.8 lakh can enrol in private schools from Class II to XII.

- Government will reimburse the pre-determined school fee.
- The selected 381 private schools have offered around 25,000 seats. However, less than 1700 students have preferred to enrol on the scheme.

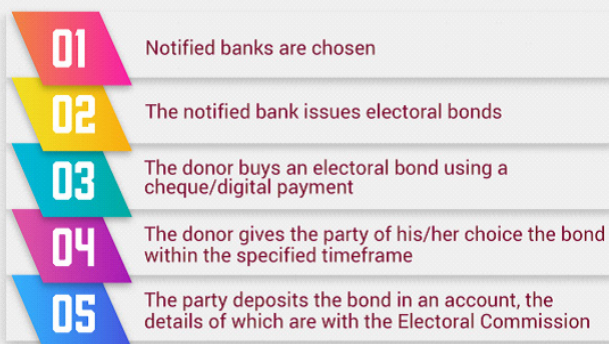
Concerns:

- The budget for the scheme could have used for the improvement of the government schools.
- The scheme may encourage private schools at the cost of government schools.
- Taranga is a Jain pilgrimage center in Gujarat with two compounds of Jain temples that are important examples of the Māru-Gurjara style of architecture.

ELECTORAL BONDS

In News: The latest data from the department of economic affairs (DEA) under the Union finance ministry has revealed that the sale of bonds has now crossed Rs 10,000 crore.

How An Electoral Bond Works



More on the Topic:

- Introduced with the Finance Bill, 2017, the Electoral Bond Scheme was notified on January 29, 2018.
- An Electoral Bond is like a promissory note that may be purchased by a person who is a citizen of India or incorporated or established in India.
- The bonds are like banknotes that are payable to the bearer on demand and are interest-free.
- Only the Political Parties registered under Section 29A of the Representation of the People Act (RPA), 1951 (43 of 1951) and which secured not less than one percent of the votes polled in the last General Election to the House of the People or the Legislative Assembly of the State, shall be eligible to receive the Electoral Bonds.
- The State Bank of India (SBI) has been authorised to issue and encash Electoral Bonds through its 29 Authorized Branches.

Arguments in Favor of Electoral Bonds:

- The purchaser would be allowed to buy electoral bond(s) only on due fulfilment of all the extant KYC norms and by making payment from a bank account.
- Donations through Electoral Bonds will only be credited in the party bank account disclosed with the ECI. This measures ensures accountability.
- The bond also limits the use of cash in political funding.

- As it is mandatory to be a registered political party to receive Electoral bond it eliminate fraudulent political parties.
- The donors name would be anonymous thus protecting donor from political victimization.
- As the bond is only through public sector bank channel it curbs black money getting in to political parties.

Arguments Against Electoral Bonds:

- Anonymous donation may compromise with the principle of free and fair election.
- Allowed possibility of corporate misuse as it removes limits and disclosure requirements on Company donations to Political Parties.
- It restricts the electoral fund to only a few political parties thus limiting the level playing field.

HAR GHAR JAL

In News: Goa become India's first 'Har Ghar Jal' certified State. Dadra & Nagar Haveli and Daman & Diu (D&NH and D&D) became India's first 'Har Ghar Jal' UT. Burhanpur, Madhya Pradesh became the first Har Ghar Jal certified district in the country.

Goa becomes 1st "Har Ghar Jal" state



by Ankit Agrawal

More on the Topic:

- 'Har Ghar Jal' certified State or UT are where Gram sabha has passed a resolution and declared their village as 'Har Ghar Jal', authenticating that all households in the villages have access to safe drinking water through taps, and confirming that 'No One is Left Out'.
- Har Ghar Jal scheme has been initiated by the Union Government in 2019 under Jal Jeevan Mission to provide tap water to every rural household by 2024.

Jal Jeevan Mission:

- Jal Jeevan Mission, is envisioned to provide safe and adequate drinking water through individual household tap connections by 2024 to all households in rural India.
- The programme will also implement source sustainability measures as mandatory elements, such as recharge and reuse through grey water management, water conservation, rain water harvesting.
- The Jal Jeevan Mission will be based on a community approach to water and will include extensive Information, Education and communication as a key component of the mission.

AYUSH GRID PROJECT

In News: The Ministry of Ayush has signed a Memorandum of Understanding (MoU) with the Ministry of Electronics and Information Technology (MeitY) for providing technical assistance for the digitalisation of the Ayush Sector under the Ayush Grid project for a span of three years.



More on the Topic:

- The Ayush Grid, a proposed central IT platform, is expected to offer numerous IT services for all systems under Ayush, including Ayurveda, Yoga & Naturopathy, Unani, Siddha, Sowa Rigpa, and Homeopathy, across functional areas such as healthcare delivery, education, research, capacity building, drug licensing and standardisation, as well as media outreach.
- The components of Ayush Grid initiative will cover all the verticals of the Ayush Sector, like Health Services, Education, Ayush Research, Central Sector and Centrally Sponsored Schemes, Training Programmes, Citizen Centric Services, Drug Licencing Portal, and Media Outreach.

UDAN SCHEME

In News: UDAN Regional Connectivity Scheme (RCS) which was launched to stimulate regional air connectivity and making air travel affordable to masses has completed five years.



More on the Topic:

- The scheme UDAN envisages providing connectivity to un-served and under-served airports of the country through revival of existing air-strips and airports.

- UDAN has a unique market-based model to develop regional connectivity.
- Interested airline and helicopter operators can start operations on hitherto un-connected routes by submitting proposals to the Implementing Agency.
- The operators could seek a Viability Gap Funding (VGF) apart from getting various concessions.
- All such route proposals would then be offered for competitive bidding through a reverse bidding mechanism and the route would be awarded to the participant quoting the lowest VGF per Seat.

Achievements of UDAN Scheme:

- Operation airports increased from 74 to 141 by now. With 425 new routes initiated under scheme, UDAN has provided air connectivity to more than 29 States/ UTs.
- 220 destinations (airports/heliports/water aerodromes) under UDAN are targeted to be completed by 2026 with 1000 routes.

GRAMEEN UDYAMI PROJECT

In News: National Skill Development Corporation (NSDC) in collaboration with Seva Bharti and Yuva Vikas Society has launched the second phase of Grameen Udyami Project.



More on the Topic:

- Grameen Udyami is a multi-skilling project, funded by National Skill Development Corporation (NSDC).
- The project is being implemented in six states including Maharashtra, Rajasthan, Chhattisgarh, Madhya Pradesh, Jharkhand, and Gujarat.
- It will augment skill training in tribal youth and ensure the inclusive and sustainable growth of tribal communities.
- It will also impart functional skills to them for enabling livelihoods and increase in Rural/Local Economy.
- I will enhance employment opportunities and reduce forced migration due to lack of local opportunities.
- It will also enable conservation of natural resources.

NIDAAN PORTAL

In News: The portal-NIDAAN or the National Integrated Database on Arrested Narco-offenders-has been developed by the Narcotics Control Bureau (NCB).



More on the Topic:

- NIDAAN is a one-stop solution for all narcotics offenders' related data and will help investigative agencies as an effective tool to connect the dots while probing narcotics cases,
- It is part of the narcotics coordination mechanism (NCORD) portal.
- The NIDAAN platform sources its data from the ICJS (inter-operable criminal justice system) and the e-Prisons (a cloud-based application) repository and it is planned to integrate it in the future with the crime and criminal tracking network system or CCTNS.
- The ICJS, an initiative of the Supreme Court e-committee, was created to enable seamless transfer of data and information among different pillars of the criminal justice system, like courts, police, jails and forensic science laboratories, from one platform.

PAALAN 1000; A NATIONAL CAMPAIGN AND PARENTING APP AT THE EARLY CHILDHOOD DEVELOPMENT

In News: The 'Paalan 1000'; a National Campaign and Parenting App at the Early Childhood Development was launched recently.



More on the Topic:

- 'Paalan 1000' focuses on the cognitive development of children in the starting two years of their life.
- It will provide practical advice to caregivers about everyday routines and will help clear doubts.
- During the first two years of a child's life, the growing child needs the right nutrition, stimulation, love and support.
- The first 1,000 days establish a solid platform for a child's physical, mental, emotional, cognitive and social health.

SEEKHO AUR KAMAO (LEARN AND EARN) SCHEME

In News: The scheme has nearly 59% female trainees (far greater than earmarked 33%) in 2020-21.

2. OBJECTIVES

- 2.1 To bring down unemployment rate of minorities during 12th Plan p
- 2.2 To conserve and update traditional skills of minorities and est their linkages with market.
- 2.3 To improve employability of existing workers, school dropouts et ensure their placement.
- 2.4 To generate means of better livelihood for marginalized minoritie bring them in the mainstream.
- 2.5 To enable minorities to avail opportunities in the growing market.
- 2.6 To develop potential human resource for the country.

More on the Topic:

- The scheme is being implemented by the Ministry of Minority Affairs.
- It is a Skill development scheme for the youth of the 14 – 35 years age group.
- It aims at providing employment and employment opportunities, improving the employability of existing workers, school dropouts etc.
- It ensures 75% placements, out of which 50% should be in the organized sector.
- Post placement support of Rs.2000/- per month is provided to placed trainees for two months as placement assistance.

SAKSHAM ANGANWADI AND POSHAN 2.0 SCHEME

In News: The Ministry of Women and Child Development has issued Operational Guidelines regarding implementation of 'Saksham Anganwadi and Poshan 2.0'.

#AatmaNirbharBharatKaBudget

MISSION POSHAN 2.0 & SAKSHAM ANGANWADI

- 1 2 lakh Anganwadis to be upgraded as 'Saksham Anganwadis'
- 2 Nutritional norms and standards to be improved
- 3 Quality and testing of Take-home Ration to be strengthened
- 4 Traditional community food habits to be promoted
- 5 Delivery of food under the Supplementary Nutrition Program to be optimised

More on the Topic:

- Saksham Anganwadi and Poshan 2.0 is an Integrated Nutrition Support Programme.
- It seeks to address the challenges of malnutrition in

children, adolescent girls, pregnant women and lactating mothers through a strategic shift in nutrition content and delivery and by creation of a convergent eco-system to develop and promote practices that nurture health, well-being and immunity.

Components of the Scheme:

- **Nutrition Support for POSHAN through Supplementary Nutrition Programme (SNP)** for children of the age group of 06 months to 6 years, pregnant women and lactating mothers (PWLM); and for Adolescent Girls in the age group of 14 to 18 years in Aspirational Districts and North Eastern Region (NER);
- **Early Childhood Care and Education** [3-6 years] and early stimulation for (0-3 years);
- **Anganwadi Infrastructure** including modern, upgraded Saksham Anganwadi; and
- **Poshan Abhiyaan**

The objectives of Poshan 2.0 are as follows:

- To contribute to human capital development of the country;
- Address challenges of malnutrition;
- Promote nutrition awareness and good eating habits for sustainable health and wellbeing; and
- Address nutrition related deficiencies through key strategies.
- Poshan 2.0 shall focus on Maternal Nutrition, Infant and Young Child Feeding Norms, Treatment Protocols for SAM/MAM and Wellness through AYUSH practices to reduce wasting and under-weight prevalence besides stunting and anemia, supported by the 'Poshan Tracker', a new, robust ICT centralised data system which is being linked with the RCH Portal (Anmol) of MoHFW.

REVAMPED DISTRIBUTION SECTOR SCHEME

In News: The Prime Minister has launched the Ministry of Power's flagship Revamped Distribution Sector Scheme which is aimed at improving the operational efficiencies and financial sustainability of Distribution Companies.



More on the Topic:

- It has been launched over a period of five years from FY 2021-22 to FY 2025-26.
- The scheme aims to provide financial assistance to DISCOMs for modernization and strengthening of distribution infrastructure, aiming at improvement of the reliability and quality of supply to end consumers.
- It is also proposed to provide 25 crore Smart Prepaid meters to consumers all over the country.
- Rural Electrification Corporation and Power Finance Corporation are the nodal agencies.

Objectives:

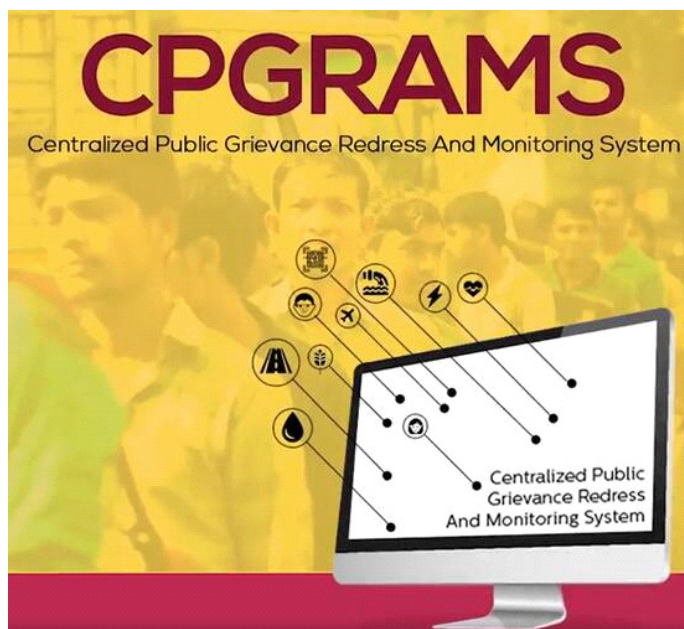
- Reduction of AT&C losses (operational losses due to inefficient power system) to pan-India levels of 12-15% by 2024-25.
- Reduction of cost-revenue gap to zero by 2024-25.
- Developing Institutional Capabilities for Modern DISCOMs.

Components:

- **Part A:** Financial support for Prepaid Smart Metering & System Metering and up-gradation of the Distribution Infrastructure (including segregation of feeders for agriculture purpose).
- **Part B:** Training & Capacity Building and other Enabling & Supporting Activities.

CENTRALISED PUBLIC GRIEVANCE REDRESS AND MONITORING SYSTEM (CPGRAMS)

In News: The Public Grievances filed on CPGRAMS will be resolved in 30 days.



More on the Topic:

- The Public Grievance Redressal mechanism in the Government of India operates on a decentralised basis, with the Centralised Public Grievance Redress and Monitoring System (CPGRAMS) at the center of it.
- Centralised Public Grievance Redress and Monitoring System is an online platform available to the citizens

24x7 to lodge their grievances to the public authorities on any subject related to service delivery.

- It is a single portal (Pgportal.gov.in) connected to all the Ministries/Departments of Government of India and States.
- Every Ministry and States have role-based access to this system.
- CPGRAMS is also accessible to the citizens through standalone mobile application downloadable through Google Play store and mobile application integrated with UMANG.
- The status of the grievance filed in CPGRAMS can be tracked with the unique registration ID provided at the time of registration of the complainant.
- CPGRAMS also provides an appeal facility to the citizens if they are not satisfied with the resolution by the Grievance Officer, which can also be tracked.

TRADE INFRASTRUCTURE FOR EXPORT SCHEME

In News: The GOI has extended the IIES scheme for the period 2021-22 to 2025-26.



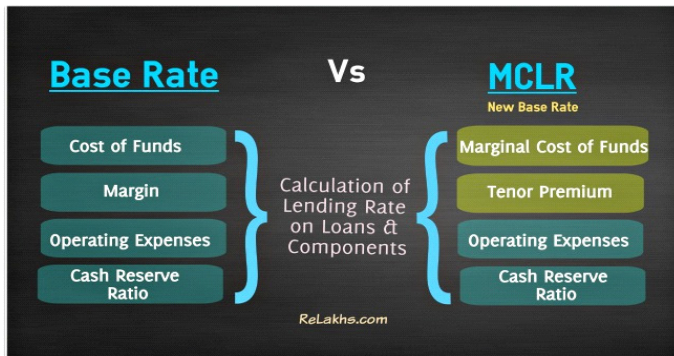
More on the Topic:

- The Department of Commerce, under the Ministry of Commerce and Industry has launched and is implementing the Trade Infrastructure for Export Scheme (TIES) since 2017.
- Its objective is to assist the Central and State/UT Government agencies in the creation or up-gradation of appropriate infrastructure for growth of exports.
- Under the scheme, financial assistance in the form of grant-in-aid is provided to Central/State Government owned agencies (or their Joint Ventures with major stake-holding by them).

INDIAN ECONOMY

MARGINAL COST OF FUNDING BASED LENDING RATE (MCLR)

In News: RBI has said the newer marginal cost of funding based lending rate (MCLR) system is more effective than the erstwhile base rate method.



More on the Topic:

- The paper said that for every 1 percentage point increase by the RBI in its repo rate, the weighted average lending rate by banks for fresh rupee loans moves up by 0.26-0.47 per cent per cent under the MCLR regime as against 0.11-0.19 per cent under the base rate regime.
- Base rate was introduced in July 2010 as a system wherein banks cannot lend under a stated rate, while the MCLR came in April 2016 wherein the banks were given a formula to calculate their cost of funding and then conduct monthly reviews of their offerings across various tenors.
- MCLR refers to the minimum interest rate of a bank below which it cannot lend, except in some cases allowed by the RBI. Thus, it is an internal benchmark or reference rate for the bank.
- Marginal cost is charged on various factors such as interest rate for various types of deposits, borrowings, and return on net worth.
- Therefore, MCLR is largely determined by the marginal cost of funds and especially by deposit rates and repo rates.

BS VI VEHICLES

In News: The Union Ministry of Road Transport and Highways has allowed retrofitment of CNG and LPG kits in petrol and diesel vehicles that are compliant with BS-VI emission norm.

Mechanics of BS-VI

► Bharat Stage VI (BS-VI) norms will take effect in India from **1 April 2020**

► BS-VI is the **most advanced emission standard** for automobiles and is equivalent to Euro-VI norms

► In order to **reduce vehicular pollution**, the government decided to leapfrog from BS-IV to BS-VI

► The new norms make on-board diagnostics (OBD) **mandatory** for all vehicles



► The OBD unit can identify likely **areas of malfunction** by means of default codes stored on a computer

► For two-wheelers, manufacturers will introduce a **fuel injection system**—a first in India

More on the Topic:

- Bharat stage (BS) emission standards are laid down by the government to regulate the output of air pollutants from internal combustion engine and spark-ignition engine equipment, including motor vehicles.
- The central government has mandated that vehicle makers must manufacture, sell and register only BS-VI (BS6) vehicles from April 1, 2020.
- The abbreviation BS, as mentioned above, refers to 'Bharat Stage'. It is prefixed to the iteration of the actual emission norms. The primary rules with the sobriquet Asian nation 2000 were introduced in the year 2000, with the second and third iterations being introduced in 2001 and 2005 with the sobriquet BSII (BS2) and BSIII (BS3), respectively.
- The fourth iteration, BSIV, was introduced in 2017 and therefore the delay between the introduction of BS3 and BS4 resulted in fast-tracking the BSVI or BS6 emission norms rather than BSV (BS5) norms.

BS-VI Standards:

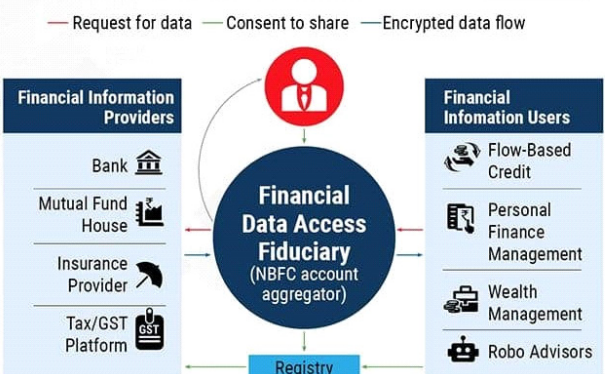
- BS-VI emission norms **set the maximum permissible levels for pollutants that an automotive or a two-wheeler exhaust can emit.**
- Sulphur content in BS-IV fuel has five times lower (10ppm) as compared to sulphur content in BS-IV fuel (50ppm).
- The nitrogen oxide emission level for diesel engines and petrol engines will decline by 70% and 25% with the BS-VI standards.
- It also introduced Diesel Particulate Filter (DPF) and Selective Catalytic Reduction (SCR).

ACCOUNT AGGREGATOR FRAMEWORK

In News: The Securities Exchange Board of India (SEBI) has joined the Reserve Bank of India's (RBI's) account aggregator framework.

UNDERSTANDING THE ACCOUNT AGGREGATOR FRAMEWORK

The Account Aggregator by RBI/SEBI/PFRDA/IRDA will facilitate consented sharing of financial information in real-time



Source: Sahamati

moneycontrol

More on the Topic:

- It is part of RBI regulated financial data sharing system.
- It is an RBI-regulated non-banking finance company (NBFC) that facilitates the collection of financial information pertaining to a customer from financial information providers on the basis of the consent of the customer.
- Account aggregation involves compiling financial data from multiple sources all at one place.
- This will enable collection of financial data from multiple inputs, ranging from loans to investments, at one place to ensure seamless sharing of information with financial institutions and service providers.
- It aims to ensure quick sharing of data with explicit permission of users, all while eliminating the need for paperwork.
- In this framework, AAs will act as an intermediary and the information will come from FIPs such as banks and AMCs and will be subsequently forwarded to financial information users (FIUs) that request the data.
- The framework aims to streamline financial inclusion, especially in the lending space.

GROSS STATE DOMESTIC PRODUCT

In News: Emerging from the shock of the Covid-19 pandemic, GSDP of 19 states and Union Territories exceeded their pre-Covid levels.



More on the Topic:

- Gross State Domestic Product (GSDP) or State Income is the most important indicator for measuring the economic growth of a State.
- Gross State Domestic Product (GSDP) is a measure in monetary terms, the sum total volume of all finished goods and services produced during a given period of time, usually a year, within the geographical boundaries of the State, accounted without duplication.

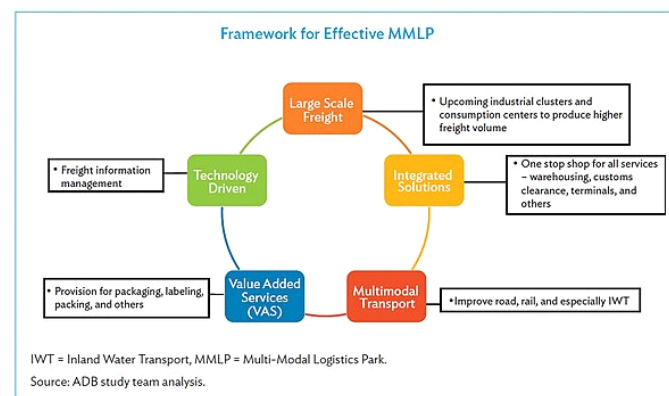
Importance of State Domestic Product:

- The State Domestic Product (SDP) or State Income is the most important indicator for measuring the economic growth of a State.
- These estimates of economy, over a period of time, reveal the extent and direction of the changes in the levels of economic development.
- The State Domestic Product is classified under three broad sectors such as Primary sector, Secondary sector and

Tertiary sector and is compiled economic activity wise as per the methodology prescribed by the Central Statistics Office (CSO), GOI and furnished to the Ministry of Statistics and Programme Implementation (MOSPI).

MULTIMODAL LOGISTICS PARK

In News: Three public sector entities under different ministries have joined hands for the development of multi-modal logistics parks under the Bharatmala project.



More on the Topic:

- The MMLPs have been conceptualized to enable seamless intermodal freight movement and offer multiple functionalities such as freight aggregation and distribution.
- Storage and warehousing solutions and value-added services such as custom clearances and IT services will also be provided to users.
- The initiative is led by National Highways Logistics Management Limited under Ministry of Road Transport and Highways (MoRTH) and the National Highways Authority of India (NHAI).
- These MMLPs will be developed in a hub-and-spoke model (a hub-and-spoke network connects every location through a single intermediary location called a hub) to improve the country's freight logistics sector.

Significance of MMLPs:

- MMLP development is expected to give tremendous benefits to the transportation sector. These include lower overall freight costs
- Reduced warehousing costs
- Reduced vehicular pollution and congestion
- Enhanced tracking and traceability of transport consignments etc.

Need for the MMLPs:

- According to the Asian Development Bank (ADB), India's Logistics sector is having high cost and lower efficiency compared to other countries.
- This has reduced the overall efficiency in the economy and increased the cost structure of all commodities.
- MMLP will provide solutions to issues associated with Indian Logistics sector.

Issues Associated with Indian Logistics Sector:

- **Skewed modal transportation mix:** In India, 60% of freight moves by road, which is significantly larger than in many developed economies.
- **Underdeveloped material handling infrastructure:** The economies of scale associated with integrated and large warehousing facilities or multimodal logistical parks (MMLPs) is not available to all participants in the value chain, including the small and medium enterprises.
- **Outdated/inefficient service model:** Less investments in information technology and equipment technology, and consequently sacrificing productivity gains and service quality.
- **Fragmented institutional and governance structure:** Different parts of the logistics value chain currently are being managed by different ministries.

INDIA: THE NEXT GLOBAL SAAS CAPITAL

In News: According to a study by Ernst & Young Global Limited (EY) and Confederation of Indian Industry (CII) titled "India: The next global SaaS capital", With Software as a Service (SaaS) setting the stage for the next wave of disruption, the Indian IT sector continues to charge ahead on its trajectory of growth and transformation.



More on the Topic:

- The study indicated that the Indian software-as-a-services (SaaS) market is expected to grow multi-fold by 2025, accounting for almost 7 to 10 per cent of the global market from 2 to 4 per cent currently.
- Compared to only 1 SaaS unicorn in 2018, India now has a total of 18, taking the third spot among the largest SaaS ecosystems in the world.
- Further, funding has increased from \$2.6 billion to \$6 billion in the span of these two years.

About Software as Service Model:

- SaaS is also known as "On-Demand Software". It is a software distribution model in which services are hosted by a cloud service provider.

- These services are available to end-users over the internet so, the end-users do not need to install any software on their devices to access these services.

PSBS PRIVATISATION

In News: The paper published in the RBI monthly Bulletin has suggested that privatization of PSBs should be done in a gradual manner instead of a big bang approach.



More on the Topic:

Arguments Against Privatisation by RBI:

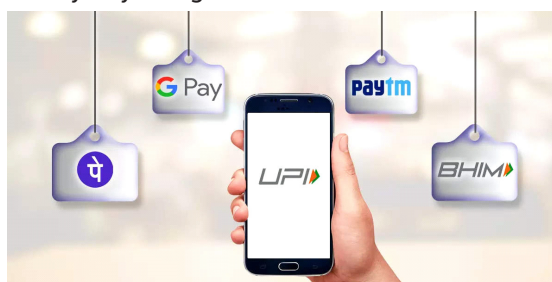
- There is evidence that public sector banks (PSBs) are **not entirely guided by the profit maximization goal alone** and have integrated financial inclusion goals in their objective function unlike their private peers.
- Some of the **recent reforms in the financial sector would also lead to strengthening of these banks.**
- **Labour cost efficiency is higher** in PSBs in comparison to PVBs.
- PSBs have gained higher degree of market confidence in recent years.
- The counter-cyclical role of public sector bank lending. In the recent years, these banks have also gained greater market confidence.
- Despite the criticism of weak balance sheets, data suggests that they weathered the covid-19 pandemic shock remarkably well.

Arguments in Favor of Privatization of PSBs:

- Privatising a few loss-making PSBs will ensure that market discipline forces them to rectify their strategy, and this will have a ripple effect on other PSBs.
- Government's liabilities will decrease and it could invest resources released by this exercise into welfare schemes.
- The government's share below 50% would end the government's diktat in several loan waiver announcements, thus ending vote bank politics.

UPI

In News: Amid reports that there may be possibility of UPI transactions carrying a service charge, the government has recently clarified that there is no consideration in Govt to levy any charges for UPI services.



More on the Topic:

- Unified Payments Interface (UPI) is an instant real-time payment system developed by National Payments Corporation of India (NPCI).
- UPI is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood.
- It facilitates inter-bank peer-to-peer (P2P) and person-to-merchant (P2M) transactions.
- UPI is currently the biggest among the National Payments Corporation of India (NPCI) operated systems including National Automated Clearing House (NACH), Immediate Payment Service (IMPS), Aadhaar enabled Payment System (AePS), Bharat Bill Payment System (BBPS), RuPay etc.
- The top UPI apps today include PhonePe, Paytm, Google Pay, Amazon Pay and BHIM, the latter being the Government offering.

Significance of UPI:

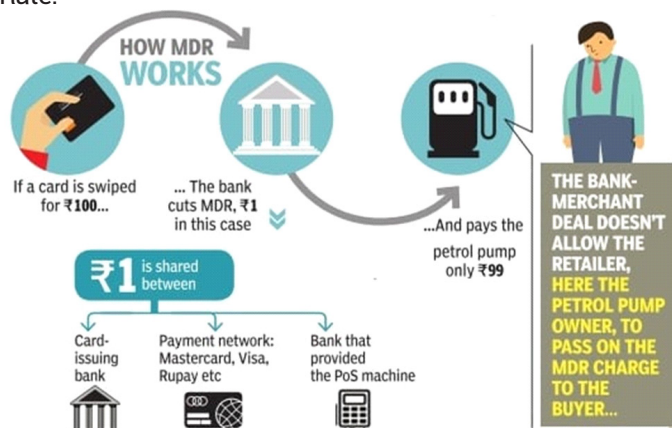
- **Immediate money transfer** through mobile device round the clock 24*7 and 365 days.
- Single mobile application for accessing different bank accounts.
- **Single Click 2 Factor Authentication** – Aligned with the Regulatory guidelines, yet provides for a very strong feature of seamless single click payment.
- **Virtual address of the customer** for Pull & Push provides for incremental security with the customer not required to enter the details such as Card no, Account number, IFSC etc.
- Raising Complaint from Mobile App directly.

NPCI:

- The National Payments Corporation of India is the specialised division of Reserve Bank of India which is under the jurisdiction of Ministry of Finance.
- This organisation was founded in the year 2008 under the Payment and Settlement Systems Act, 2007. NPCI has been incorporated as a 'not for profit' company under section 8 of Companies Act 2013.

MERCHANT DISCOUNT RATE

In News: Reserve Bank of India (RBI) is seeking opinions of stakeholders regarding reintroduction of Merchant Discount Rate.



More on the Topic:

- MDR is the rate charged to a merchant for payment processing services on various it is charged as percentage of transaction value.
- Simply put, it is a charge to a merchant by a bank for accepting payment from their customers in credit and debit cards every time a card gets swiped in their stores.
- Similarly, MDR also includes the processing charges that a payments aggregator has to pay to online or mobile wallets or indeed to banks for their service.
- The charge collected will be distributed between bank that enables the transaction, vendor installs point of sale (PoS) machine, and card network provider such as Visa, MasterCard, etc.

MODERNISATION OF FOODGRAIN STORAGE INFRASTRUCTURE

In News: The Ministry of Consumer Affairs, Food & Public Distribution has said it has started the process of modernisation of foodgrain storage infrastructure in the country.



More on the Topic:

- A new Hub & Spoke Model in Public Private Partnership (PPP) Mode for the development of grain silos across the country has been proposed for the modernisation of food grain storage infrastructure in the country.
- Hub and Spoke Model is a transportation system which consolidates the transportation assets from standalone locations referred to as "Spoke" to a central location named as "Hub" for long-distance transportation.
- Hubs have a dedicated railway siding and container depot facility while the transportation from Spoke to Hub is undertaken through road and from Hub to Hub via rail.

Advantages of the Model:

- This model will harness the efficiency of railway siding and promote cost efficiency through bulk storage & movement.
- It will also reduce cost and time of handling and transportation and simplifies operational complexities in addition to economic development, infrastructure development & employment generation in the country.
- Besides, Silo are declared as sub Mandi yard which brings ease of procurement for farmers and leads to reduction in logistics cost.

Significance of storage:

- Ensures a steady supply of gains.
- Protects the quality of perishable and semi-perishable products.
- Economic development, infrastructure development & employment generation in the country

EMERGENCY CREDIT LINE GUARANTEE SCHEME

In News: The Union Cabinet has approved an additional infusion of Rs 50,000 crore under the Emergency Credit Line Guarantee Scheme (ECLGS) to ensure low-cost credit flow to hospitality and related segments hit hard by the COVID-19 pandemic.



Interlinking Udyam, E-Shram, NCS, ASEEM Portals



Extending ECLGS with focus on Hospitality & Related Enterprises



Revamping CGTMSE with additional credit of 2 lakh crore



Rolling out of RAMP Programme: Raising & Accelerating MSME Performance with outlay of 6000 crore over 5 years

[@PIB_India](#) [@PIBHindi](#) [@pibindia](#) [@pibindia](#) [PIBIndia](#) [@PIB_India](#) [@PIBHindi](#) [@PIBIndia](#)

More on the Topic:

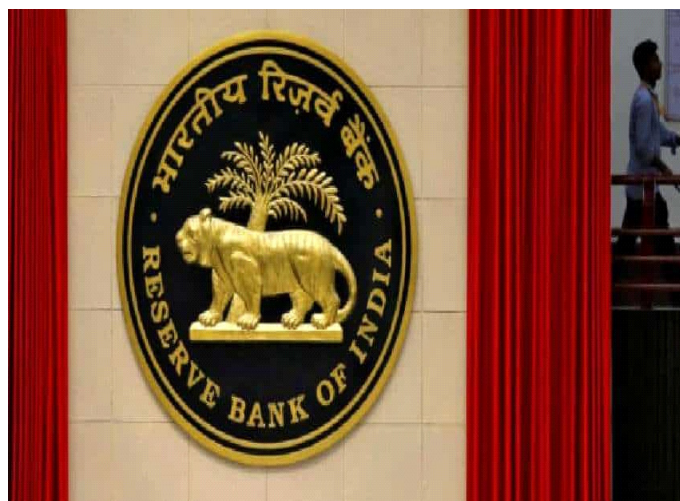
- The ECLGS was announced in May 2020 in wake of the outbreak of COVID-19 to help various sectors, especially in the MSME segment, to get credit at a concessional rate of 7 per cent.
- As a part of the same, government officials provide a 100% credit guarantee on behalf of the National Credit Guarantee Trustee Company (NCGTC).
- The ECLGS loan amount offered is up to 20% of the borrower's total outstanding loan of up to 50 Crores, which means the maximum loan amount will be 0 Crores.

National Credit Guarantee Trustee Company Limited:

- National Credit Guarantee Trustee Company Limited (NCGTC) is a **Union Government Company**. It is classified as a company limited by shares.
- It was set up by the Government of India to, inter alia, act as a common trustee company to manage and operate various credit guarantee trust funds.

RBI REGULATION OF DIGITAL LENDING

In News: The Reserve Bank of India has released norms to regulate digital lending to crack down on the growing number of frauds and unlawful activities.



More on the Topic:

- Following are the norms,
- All loan disbursements and repayments have to be executed only between the bank accounts of the borrower and the regulated entity without any pass-through or pool account of the lending service provider (LSP) or any third party.
- Any fees or charges payable to LSPs in the credit intermediation process shall be paid directly by the regulated entity and not by the borrower.
- Data collected by Digital lending apps should be need based.

Significance of the guidelines:

- Under digital lending, there have been concerns related to unbridled engagement of third parties, mis-selling, breach of data privacy, unfair business conduct, charging of exorbitant interest rates, and unethical recovery practices.
- This practices could be controlled or mitigated by the regulatory norms.

What is Digital Lending:

- Digital Lending involves lending through web platforms or mobile apps, utilizing technology for authentication and credit evaluation.

PRIMARY AGRICULTURAL COOPERATIVE SOCIETIES

In News: The government will bring model by-laws to govern all Primary Agricultural Cooperative Societies (PACS) in the country.



More on the Topic:

- PACS are the ground-level cooperative credit institutions that provide short-term, and medium-term agricultural loans to the farmers for the various agricultural and farming activities.
- The first Primary Agricultural Credit Society (PACS) was formed in the year 1904.
- PACS are registered under the Co-operative Societies Act and also regulated by the RBI.
- They are governed by the "Banking regulation Act-1949" and Banking Laws (Co-operative societies) Act 1965.

Significance:

- It works at the grassroots gram Panchayat and village level.
- The PACS functioning at the base of the co-operative banking system constitute the major retail outlets of short term and medium term credit to the rural sector.
- PACS is the final link between the ultimate borrowers, i.e., rural people, on the one hand, and the higher agencies, i.e., Central cooperative bank, state cooperative bank, and Reserve Bank of India, on the other.

The major deficiencies of the PACS:

- **Organizational Weakness:** The rural population covered as members is only 50% of all the rural households. They are weak because of inadequate membership and they do not attract enough membership because they are weak.
- **Inadequate Resources:** The resources of the PACS are much too inadequate in relation to the short-and medium-term credit needs of the rural economy.
- **Large over-dues:** have become a big problem for the PACS.

Way Ahead:

- The resource mobilisation capacity should be increased.
- The PACS are being reorganized so that every reorganized PACS covers a gross cropped area of 2000 hectares within a radius of 10 kms.
- Non-viable units should be either amalgamated with reorganized societies or liquidated.
- PACS should have Technology supported activities like Micro-ATMs and Wi-Fi Internet.

CORPORATE TAX REVENUE

In News: The Income Tax Department has informed that the corporate tax collection has seen a rapid growth of 34% in the first four months of the current fiscal year as compared to the corresponding period of FY 2021-22.



More on the Topic:

- **Reason for Improvement:** the simplified tax regime with low rates and no exemptions has led to this change.
- Finance Minister Nirmala Sitharaman has announced major changes in corporate income tax rates to revive growth in the broader economy in 2019. This has been achieved through an ordinance– the Taxation Laws (Amendment) Ordinance 2019.
- The following were some of the changes introduced through the ordinance.
- Corporate tax rate to be 22 per cent without exemptions.
- No Minimum Alternate Tax (MAT) applicable on such companies.
- Effective corporate tax rate after surcharge and cess to be 25.17 percent.

Overall Tax Statistics:

- India's gross tax revenues surged 34% in 2021-22 to exceed 27 lakh crore against the Budget estimate of 22.17 lakh crore.
- **The tax-to-GDP ratio at 11.7%**, from 10.3% in the previous year and is the highest since at least 1999.
- Direct taxes are 6.1% of GDP, and indirect taxes are 5.6%

About corporate Tax:

- Corporate tax is the tax which is levied on the income of the domestic and foreign companies that arose in India.
- It is levied on both the public and private companies registered under the Companies Act of 2013.
- The rate at which the tax is imposed as per the provisions of the Income Tax Act, 1961 is known as the Corporate Tax Rate.

TAX DEVOLUTION

In News: The Ministry of Finance released two installments of tax devolution to State Governments.



More on the Topic:

- The changed devolution is part of Centre's commitment to ensure that States have enough money to accelerate their capital and development expenditure.
- Tax devolution is one of the core tasks of the 15th Finance Commission constituted under **Article 280 (3) of the Constitution**. The commission makes recommendations regarding the distribution of net proceeds of taxes between the Union and the States.
- 15th Finance Commission headed by N. K. Singh.
- The share of states in the central taxes is recommended to be 41%.
- This is less than the 42% share recommended by the 14th Finance Commission.

Over the 2021-26 period, the following grants will be provided from the centre's resources:

- Revenue deficit grants: 17 states will receive grants worth Rs 2.9 lakh crore to eliminate the revenue deficit.
- Sector-specific grants of Rs 1.3 lakh crore will be given to states for eight sectors:
- Health
- School Education
- Higher Education
- Implementation of agricultural reforms
- Maintenance of PMGSY roads
- Judiciary
- Statistics
- Aspirational districts and blocks.
- A portion of these grants will be performance-linked.

The Finance Commission recommended state-specific grants of Rs 49,599 crore. These will be given in the areas of:

- Social needs
- Administrative governance and infrastructure.
- Water and sanitation.
- Preservation of culture and historical monuments.
- High-cost physical infrastructure.

The total grants to local bodies will be Rs 4.36 lakh crore (a portion of grants to be performance-linked) including:

- Rs 2.4 lakh crore for rural local bodies.
- Rs 1.2 lakh crore for urban local bodies.
- Rs 70,051 crore for health grants through local governments.

INDIA'S DISCOM CHALLENGES

In News: Central government is planning to give a renewed Push to DISCOMs.

Improving discoms' revenue recovery

- Performance-linked incentive for discom staff and effective monitoring systems
- Introduce incentives for online and timely bill payments²
- Create safety nets for low consumption consumers who cannot afford to pay their bills²
- Enhancing staff capacity for improved billing and collection
- Investing in bill collection infrastructure and community engagement to address non-payment

DBT and additional fiscal headroom through subsidy reduction

- Taking lessons from the existing DBT models in Andhra Pradesh, Madhya Pradesh, Punjab, etc.
- Developing framework for targeting of subsidies to domestic and agriculture consumers

Amortising state government dues to address discoms' liquidity crisis

- Time-bound planning (sort of a monthly/quarterly EMI) to clear pending dues and arrears
- Mandate No Dues Certificates for state depts. from electricity dept. to avoid dues build up

Tariff hikes and addressing regulatory asset

- Issue bonds through securitisation of receivables against regulatory assets as done in Rajasthan
- Inflation adjusted tariff hikes (similar to a Delhi discoms' proposal for FY 2022)

Reducing the operating cost for discoms

- Power procurement from the markets as done in Andhra Pradesh
- Accelerating the implementation of the market-based economic dispatch

More on the Topic:

- In India, DISCOMs (Power Distribution Companies) have been **accumulating losses and are under outstanding debt**, as these utilities are supplying electricity at tariffs that are far below cost.
- These financially-stressed DISCOMs are not able to supply adequate power at affordable rates; this hampers the quality of life and overall economic growth and development.

The Reasons for DISCOMs Challenges:

- **High AT&C losses:** The precarious financial position of DISCOMs is due to the high level of aggregate technical and commercial (AT&C) losses, the levy of inadequate or lesser tariffs when compared to the cost of power supply, and insufficient subsidy support from state governments.
- **Inefficiencies in power distribution**, such as large transmission and distribution losses on power, have further strained finances of DISCOMs, who have been heavily borrowing from banks to operate themselves.
- **There are frequent delays in the tariff determination process.** This affects cost recovery as well as payments on time.
- **Minimizing the AT&C losses is critical** to improve the operational efficiency of Discoms. However, even six years after UDAY was launched, various levels in the distribution chain (the feeder, the distribution transformer (DT) and the consumer) have not been fully metered. As a result, it difficult to isolate and identify loss-making areas and take corrective action.
- **There is cross Subsidy existing in India's power distribution policy.** Higher tariff is charged from commercial and industrial consumers to cross-subsidize agricultural and low-income households. However, high-tariff paying consumers are migrating to alternative sources of energy like solar.

- **Power Subsidy:** A common feature of the power distribution policies of the States is to provide free or heavily subsidized supply to agriculture. The connections for the farm sector are unmetered. It's a burden on Government and public.

About DISCOMS:

- Distribution is done by the Distribution Companies (DISCOMs) which connect power producers to the households. They are the interface between utilities and the consumers.
- Under the Indian Constitution, power is a concurrent subject and the responsibility for distribution and supply of power to rural and urban consumers rests with the states.
- Hence, DISCOMs are predominantly owned by the state governments. Private DISCOMs are also operational in India but are limited to a few cities like Delhi and Mumbai. Government of India provides assistance to states through various Central Sector / centrally sponsored schemes for improving the distribution sector.

Way Ahead:

- Segregation of feeders has been suggested as an option to arrive at the accurate consumption of the farm sector to reduce subsidy burden. Gujarat is cited as a success story in this regard.
- DISCOM restructuring via good Corporate Governance and higher private participation in distribution hold out the possibility of greater efficiency.
- **Depoliticisation of DISCOMs** is a must. The state governments should promote **autonomy, competence and transparency of the State Electricity Regulatory Commission (SERC)**.
- The creation of a national power distribution company to ensure procurement of electricity at competitive prices will be a game changer.
- 5 point reforms mentioned in the above infographic should be utilised.

ASHOK CHAWLA COMMITTEE ON NATURAL RESOURCE ALLOCATION

In News: A recent Comptroller and Auditor General of India report had also highlighted gaps in spectrum allocations, finding a large quantity of spectrum lying idle. This has initiated a debate on Ashok Chawla committee report.



More on the Topic:

- A high-power committee was set up by the central government in January 2011 to examine the approach on how to allocate natural resources.
- The panel was headed by former finance secretary Ashok Chawla and was asked to prepare a roadmap for efficient and transparent distribution of resources like spectrum.
- **The panel looked into eight natural resources: Coal, minerals, spectrum, petroleum, natural gas, land, water and forests.**
- The Manmohan Singh-led central government accepted 69 out of the 81 recommendations of the committee.

Recommendations of the Panel:

- **Spectrum:** Spectrum should be allocated to companies only through market-related processes such as auctions.
- Allocation should be unbundled from the issuing of licences, so that companies can trade spectrum.
- An integrated legislative framework for spectrum management is needed for both commercial and non-commercial frequency bands – for optimal use of resources.
- **Land:** A public database of government land and its allocation for transparency. It had also recommended e-auction or competitive bidding for allocation and updating of land rent on par with market rate for better income.
- **Forests:** A scientific public domain database of forest clearances should be established and all decisions should be publicly available. The panel also called for **striking a balance between the value of the use for which the forest is needed** – like extracting minerals – and the value of the forest itself.
- **Natural gas:** The panel recommended market-based pricing for natural gas, with the price of imported LNG acting as a cap. The prices for natural gas to produce urea should be fixed by the government for agriculture.
- **Petroleum:** The committee called the New Exploration Licensing Policy a “benchmark for transparency in the natural resources sector”.
- **Coal:** It recommended end Coal India's monopoly. Independent mining companies should be allowed to supply to end-users.
- **Minerals:** Shifting to market-based pricing for metals, minerals and other fossil fuels. It also called for development of areas being mined.
- **Water:** There is a need for a **comprehensive national legislation on water** in the country. There is a lack of an overall integrated system of water management.

5G SPECTRUM AUCTION

In News: India's biggest ever auction of telecom spectrum for 5G has ended recently.

HOW MUCH EACH BAND FETCHED

Payment by telcos

Band	₹cr	Band	₹cr
700 MHz	39,270	2100 MHz	3,180
800 MHz	1,050	2500 MHz	650
900 MHz	349	3300-3630 MHz	80,590
1800 MHz	10,376	26 GHz	14,709

₹150,173 cr Total

Source: DoT



More on the Topic:

- The auction was held for spectrum in various low (600 MHz, 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz, 2500 MHz), mid (3300 MHz), and high (26 GHz).

About Spectrum:

- Spectrum here refers to the invisible radio frequencies that wireless signals travel over.
- Spectrum auction relates to the radio frequencies allocated to the mobile industry and other sectors for communication over the airwaves.
- Those signals are what enable to make calls from mobile devices, tag friends on Instagram, call an Uber, pull up directions to a destination, etc. on mobile devices.

5G Spectrum:

- 5G mainly works in 3 bands, namely low, mid and high frequency spectrum — all of which have their own uses as well as limitations.
- Low Band Spectrum:** In terms of coverage and speed of Internet and data exchange, the maximum speed is limited to 100 Mbps (Megabits per second).
- Mid Band Spectrum:** It offers higher speeds compared to the low band, but has limitations in terms of coverage area and penetration of signals.
- High Band Spectrum:** It offers the highest speed of all the three bands, but has extremely limited coverage and signal penetration strength.
- This band greatly enhances futuristic 5G technology applications like Internet of Things (IoT) and smart technology but will require considerable infrastructure.

Spectrum Auction:

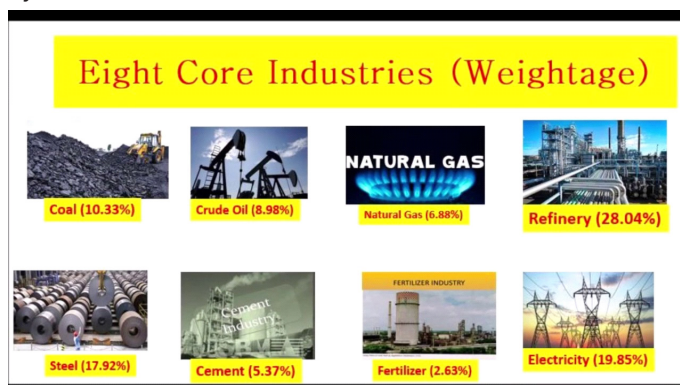
- A spectrum auction is a process whereby a government uses an auction system to sell the rights to transmit

signals over specific bands of the electromagnetic spectrum and to assign scarce spectrum resources.

- Union government owns all the publicly available assets within the geographical boundaries of the country, which also include the airwaves spectrum.
- Most of the radio spectrum is reserved in countries for defence. The rest is available for public use.
- With the expansion in the number of cellphone, wireline telephone and internet users, the need to provide more space for the signals arises from time to time.
- To sell these assets to companies willing to set up the required infrastructure to transport these waves from one end to another, the central government through the DoT auctions these airwaves from time to time.

CORE INDUSTRIES

In News: The combined Index of Eight Core Industries rose by 12.7% in June 2022.



More on the Topic:

- The Eight Core Industries comprise 40.27% of the weight of items included in the Index of Industrial Production (IIP).
- The Index of Industrial Production (IIP) is an index that indicates the performance of various industrial sectors of the Indian economy.
- It is calculated and published by the Central Statistical Organisation (CSO) every month. It is a composite indicator of the general level of industrial activity in the economy.

Core Industries:

- Core Industries (core sectors) of the economy are the main or the key industries in the economy. There are 8 such sectors in India.
- The industries included in the eight-core sectors are coal, crude oil, natural gas, refinery products, fertilizer, steel, cement and electricity.
- The eight core sector industries in decreasing order of their weightage: Refinery Products> Electricity> Steel> Coal> Crude Oil> Natural Gas> Cement> Fertilizers.

ENVIRONMENT AND ECOLOGY

THE WARMING OF ARCTIC OCEAN AND ITS IMPACT ON INDIA

In News: The Finnish Meteorological Institute researchers published their study concluding that the Arctic is heating four times faster than the rest of the planet.



More on the Topic:

- The warming is more concentrated in the Eurasian part of the Arctic, where the Barents Sea north of Russia and Norway is warming at an alarming rate – seven times faster than the global average.

What is Arctic amplification? What causes it?

- While changes are witnessed across the planet, any change in the surface air temperature and the net radiation balance tend to produce larger changes at the north and south poles.
- This phenomenon is known as polar amplification; these changes are more pronounced at the northern latitudes and are known as the Arctic amplification.

The Causes:

- Among the many global warming-driven causes for this amplification, the ice-albedo feedback, lapse rate feedback, water vapour feedback and ocean heat transport are the primary causes.
- Sea ice and snow have high albedo (measure of reflectivity of the surface), implying that they are capable of reflecting most of the solar radiation as opposed to water and land. In the Arctic's case, global warming is resulting in diminishing sea ice.

- As the sea ice melts, the Arctic Ocean will be more capable of absorbing solar radiation, thereby driving the amplification.
- The lapse rate or the rate at which the temperature drops with elevation decreases with warming.
- Studies show that the ice-albedo feedback and the lapse rate feedback are responsible for 40% and 15% of polar amplification respectively.

The consequences of Arctic warming?

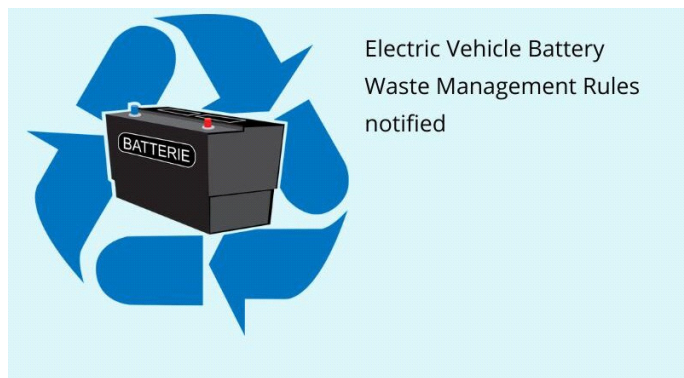
- The causes and consequences of Arctic amplification are cyclical, what might be a cause can be a consequence too.
- Greenlandic ice sheet holds the second largest amount of ice, after Antarctica, and therefore it is crucial for maintaining the sea level.
- If the sheet melts completely, the sea level would rise by seven metres, capable of subsuming island countries and major coastal cities.
- The warming of the Arctic Ocean and the seas in the region, the acidification of water, changes in the salinity levels, is impacting the biodiversity, including the marine species and the dependent species.
- The warming is also increasing the incidence of rainfall which is affecting the availability and accessibility of lichens to the reindeer. The Arctic amplification is causing widespread starvation and death among the Arctic fauna.
- The permafrost in the Arctic is thawing and in turn releasing carbon and methane which are among the major greenhouse gases responsible for global warming.

What is the impact on India?

- Scientists found that the reduced sea ice in the Barents-Kara sea region can lead to extreme rainfall events in the latter half of the monsoons in September and October.
- The changes in the atmospheric circulation due to diminishing sea ice combined with the warm temperatures in the Arabian Sea contribute to enhanced moisture and drive extreme rainfall events.
- In 2014, India deployed IndARC, India's first moored-underwater observatory in the Kongsfjorden fjord, Svalbard, to monitor the impact of the changes in the Arctic Ocean on the tropical processes such as the monsoons.
- According to the World Meteorological Organization's 'State of Global Climate in 2021', sea level along the Indian coast is rising faster than the global average rate.
- One of the primary reasons for this rise is the melting of sea ice in the polar regions, especially the Arctic.
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BATTERY WASTE MANAGEMENT RULES, 2022

In News: Ministry of Environment, Forest and Climate Change, Government of India published the Battery Waste Management Rules, 2022 on 24th August, 2022 to ensure environmentally sound management of waste batteries.



More on the Topic:

- New rules will replace Batteries (Management and Handling) Rules, 2001.
- The rules cover all types of batteries, viz. Electric Vehicle batteries, portable batteries, automotive batteries and industrial batteries.
- The rules function based on the concept of Extended Producer Responsibility (EPR) where the producers (including importers) of batteries are responsible for collection and recycling/refurbishment of waste batteries and use of recovered materials from wastes into new batteries.
- EPR mandates that all waste batteries to be collected and sent for recycling/refurbishment, and its prohibits disposal in landfills and incineration.
- To meet the EPR obligations, producers may engage themselves or authorise any other entity for collection, recycling or refurbishment of waste batteries.
- The rules will enable setting up a mechanism and centralized online portal for exchange of EPR certificates between producers and recyclers/refurbishers to fulfil the obligations of producers.
- The rules promote setting up of new industries and entrepreneurship in collection and recycling/refurbishment of waste batteries.

Important Provisions:

- Mandating the minimum percentage of recovery of materials from waste batteries under the rules will bring new technologies and investment in recycling and refurbishment industry and create new business opportunities.
- Prescribing the use of certain amount of recycled materials in making of new batteries will reduce the dependency on new raw materials and save natural resources.
- Online registration & reporting, auditing, and committee for monitoring the implementation of rules and to take measures required for removal of difficulties are salient features of rules for ensuring effective implementation and compliance.

- On the principle of Polluter Pays Principle, environmental compensation will be imposed for non-fulfilment of Extended Producer Responsibility targets, responsibilities and obligations set out in the rules.
- The funds collected under environmental compensation shall be utilised in collection and refurbishing or recycling of uncollected and non-recycled waste batteries.

FOREVER CHEMICALS

In News: A recent study published in Environment Science and Technology has found that rainwater from many places across the globe is contaminated with "forever chemicals".



More on the Topic:

- "Per- and polyfluoroalkyl substances," (PFAs) are called "forever chemicals" because of their tendency to stick around in the atmosphere, rainwater and soil for long periods of time.
- PFAs are man-made chemicals used to make nonstick cookware, water-repellent clothing, stain-resistant fabrics, cosmetics, firefighting forms and many other products that resist grease, water and oil.
- PFAs can migrate to the soil, water and air during their production and use. Since most PFAs do not break down, they remain in the environment for long periods of time.
- Some of these PFAs can build up in people and animals if they are repeatedly exposed to the chemicals.

What harm do PFAs cause?

- A variety of health risks that are attributed to PFA exposure, including decreased fertility, developmental effects in children, interference with body hormones, increased cholesterol levels and increased risk of some cancers.
- Recent research has also revealed that long-term low-level exposure to certain PFAs can make it difficult for humans to build antibodies after being vaccinated against various diseases.

How can these chemicals be removed from rainwater?

- While there is no known method that can extract and remove PFAs from the atmosphere itself, there are many effective, albeit expensive, methods to remove them from rainwater that has been collected through various rainwater harvesting methods.
- One way to do this would be to use a filtration system with activated carbon. The activated carbon will need to be removed and replaced regularly. Also, the old contaminated material must be destroyed.

COMPOSTABLE PLASTIC

In News: Union Minister of State (Independent Charge) Science & Technology has approved StartUp loan for a company for commercialising "compostable" plastic.



More on the Topic

- This project has received seed funding under NIDHI Prayas (DST), Niti Aayog and UNIDO for the prototype development.
- The composite under the project is a unique blend of Thermoplastic-Starch (TPS)-glycerin with some chemical modifications that provides higher strength with low manufacturing cost.
- The granules prepared from this composite can be moulded into any shape and used as per the requirement, and it further breaks down into natural substances once thrown out.

About Biodegradable Plastics:

- Biodegradable plastics are made in a way that they can breakdown or degrade when exposed to the sun's ultra-violet radiation, enzymes, bacteria, water, or wind abrasion.
- Biodegradable plastics can be made from 1) a mixture of organic bio-based materials, such as starch and cellulose; 2) biodegradable synthetic polyesters that are fossil-based or 3) bio-based oils, such as sugarcane, which are not always biodegradable.

About NIDHI, PRAYAS Scheme:

- Department of Science & Technology has launched a NIDHI program (National Initiative for Developing and Harnessing Innovations) under which programmes for setting up of incubators, seed fund, accelerators and 'Proof of concept' grant for innovators and entrepreneurs have been launched.

- Under NIDHI, PRAYAS (Promoting and Accelerating Young and Aspiring innovators & Startups) programme has been initiated in which established Technology Business Incubators (TBI) are supported with PRAYAS grant to support innovators and entrepreneurs with grants for 'Proof of Concept' and developing prototypes.

PETROLEUM COKE

In News: Indian companies are importing significant volumes of petroleum coke from Venezuela for the first time.

Coke	Coal
It is an amorphous form of carbon	It is a non crystalline form of carbon
It is obtained by heating soft coal in the absence or limited supply of air	It is obtained by the decay of vegetation, which existed millions of years ago

More on the Topic:

- Petroleum coke, or pet coke, is a product produced from all types of oil (light/heavy crudes) during the oil refining process. The heavier the oil (i.e. higher in their carbon content), the more pet coke produced. There are two distinctive grades of Petroleum Coke viz. Calcined Pet Coke and Fuel Grade Pet Coke.
- Fuel Grade Pet Coke, directly comes out of the Coker and is often referred to as Green Coke ("green" means unprocessed). This coke is high in sulphur and heavy metals, and is burned in power plants to generate electricity.
- The further processing of Green Coke produces Calcined Pet Coke (CPC), which is low in sulphur and heavy metals and used to produce aluminium, steel, and as industrial feedstock.

What are the key benefits of fuel grade pet coke over coal?

- A tonne of pet coke is more expensive than coal, and produces more energy when burnt.
- Pet coke is a direct replacement of coal as a fuel as its gross calorific value is nearly 8000 Kcal/kg which is twice the value of average coal used in electricity generation.
- The low ash content makes it a decent fuel for power generation in coal-fired boilers.

What are the key environmental challenges in using Pet coke?

- Pet coke is over 80 per cent Carbon and emits 5 to 10 per cent more Carbon Dioxide (CO₂) than coal on a per unit of energy basis when burned for power.
- At the same time, it is very rich in Sulphur and Volatile Organic Components, which on burning, emit extremely air polluting gases, particularly Sulphur Dioxide (SO₂).
- However, it is widely used by the cement industry - its largest consumer, as SO₂ emissions, are absorbed by limestone.

ANANG TAL LAKE

In News: The Anang Tal lake in South Delhi, believed to have been built a thousand years ago, has been declared a monument of national importance through a gazette notification by the Ministry of Culture.



More on the Topic:

- Anang Tal is situated "to the north of Jog Maya temple and approximately 500 metres to the northwest of Qutub Complex", and dates back to 1,060 AD.
- "Tradition ascribes this tank to a Tomar King, Anangpal II, the builder of Lal Kot.
- Multiple inscriptions and coins suggest Anangpal Tomar was the ruler of present-day Delhi and Haryana in between the 8th-12th centuries.
- It is said to have been a place of a general resort but now it is dried up and used for cultivation.

MEGALODON

In News: New research published in the journal Science Advances suggests that the extinct *Otodus megalodon* shark could eat up giant sharks like orca (or killer whales) in just five bites.



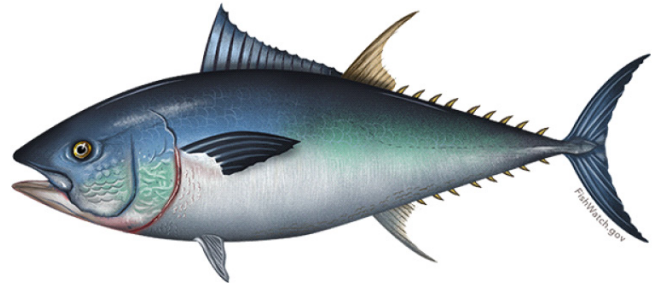
More on the Topic:

- Megalodon is one of the biggest predatory fish of all time and the meaning of megalodon is "big tooth".
- It is an extinct species of mackerel shark that lived approximately 23 to 3.6 million years ago.
- It was estimated to be lived at around 23 million to 2.6 million years ago.
- It was around 50 feet (16 meters) from nose to tail.
- That's about two to three times the size of today's great white shark.

- Its average cruising speed was faster than sharks today and it could have migrated across multiple oceans with ease.

PACIFIC BLUEFIN TUNA

In News: The biomass of the Pacific Bluefin Tuna has increased and is second-highest in recorded history. The increase is due to conservation efforts.



More on the Topic:

- The biomass had shrunk to a sliver of its potential unfished biomass (another major assessment metric for the species) through the late 1990s and 2000s due to overfishing.
- The Western and Central Pacific Fisheries Commission rolled out measures from 2001 that reduced catch of smaller bluefin and limited that of the larger ones. This allowed more fish to grow to maturity.
- Bluefin are the **largest tunas** and can live up to **40 years**. They migrate across all oceans and can dive deeper than 3,000 feet.
- They hunt by sight and have the sharpest vision of any bony fish.

GREAT INDIAN BASTARD

In News: The perceived beliefs and recorded observations pertaining to the egg-laying habits of the Great Indian Bustard (GIB) have changed after the recent excessive rains in western Rajasthan.



More on the Topic:

- The critically endangered bird species has adopted an altogether new habit of laying a **clutch of two eggs at a time** after having a diet with additional proteins during the monsoon season.

- GIB is one of the heaviest flying bird endemic to the Indian subcontinent.
- It is the State Bird of Rajasthan.
- As per the studies conducted by **Wildlife Institute of India**, there are around 150 Great Indian Bustards left across the country which includes about 128 birds in Rajasthan and less than 10 birds each in the States of Gujarat, Maharashtra, Andhra Pradesh and Karnataka.

Protection Status:

- **IUCN Status:** Critically Endangered.
- **Listed in Wildlife Protection Act's Schedule 1.**
- The Great Indian Bustard has been included in the **Appendix I of Convention on Migratory Species (CMS)** on the basis of a proposal submitted by India.
- The species has been identified for conservation efforts under the component '**Species Recovery Programme**' of the Centrally Sponsored Scheme (CSS)-Development of Wildlife Habitat.
- **Important Sites:** Desert National Park Sanctuary (Rajasthan), Naliya (Gujarat), Warora (Maharashtra) and Bellary (Karnataka).

NIGER SEED CULTIVATION

In News: India's Niger seed cultivation is declining.



More on the Topic:

- Niger is a minor oilseed crop that is grown predominantly under rainfed conditions.
- Native to Ethiopia, Eritrea and Malawi. Niger seeds are also grown in India.
- Niger seeds resemble sunflower seeds in shape, but are smaller in size and black.
- The crop neither requires much water nor fertilisers and pesticides.
- **It is one of the 14 kharif crops for which the Centre releases a minimum support price (MSP) every year.**
- In 2020-21, the cultivated area shrunk by 80 per cent to a little over 0.1 million ha, the lowest among the 14 kharif crops with MSP. Paddy, the most widely grown kharif crop, is cultivated on almost 40 million ha.

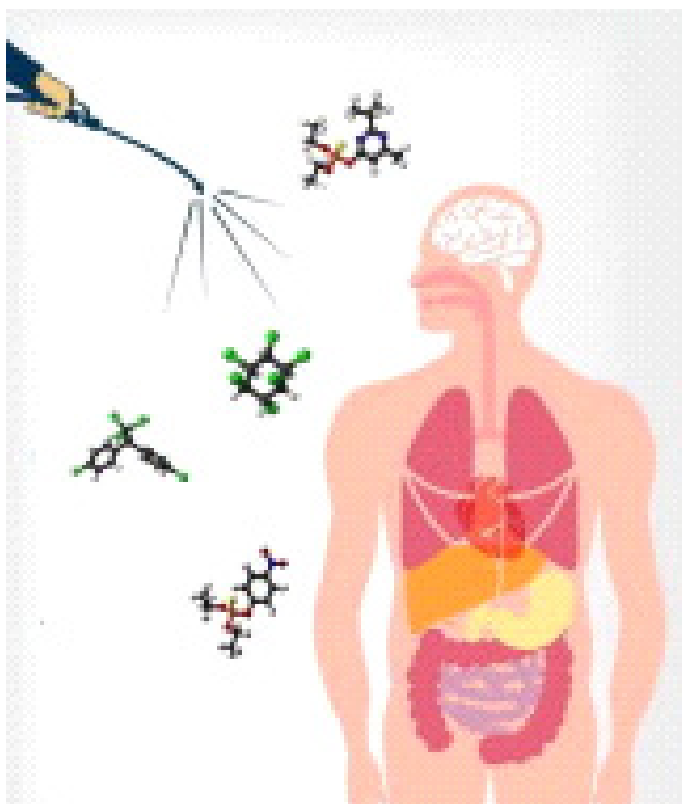
Reasons for Decline:

- Niger plants are regularly destroyed by amarbel, a twining parasitic plant known as *Cuscuta chinensis*.

- Government research institutes have developed high-yielding, amarbel-resistant niger varieties, but these seldom reach farmers.
- Most farmers informally procure seeds from private growers or fellow farmers. Such seeds aid in the spread of amarbel weeds
- The existing formal system of seed production had been hardly sufficient to cope with the seed requirement.
- Niger is an important tribal food and tribal food has not been a priority for the government.

UNAPPROVED USE OF CHLORPYRIFOS, FIPRONIL, ATRAZINE AND PARAQUAT

In News: According to a report by the Pesticide Action Network (PAN) a non-profit body, chlorpyrifos, fipronil, atrazine and paraquat are being used in excess in various states than what has been recommended by the Central Insecticides Board and Registration Committee.

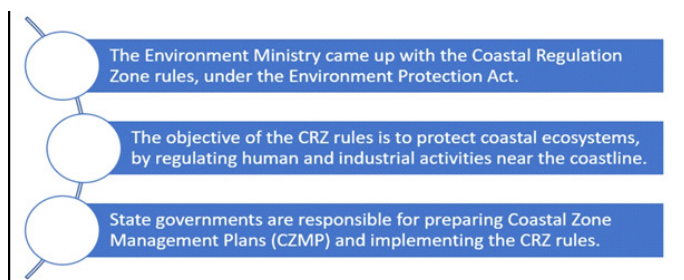


More on the Topic:

- Central Insecticides Board and Registration Committee, India's pesticides regulator, has approved specific uses of agrochemicals. But state agriculture departments and industries recommended the four chemicals for more crops than their approved use.
- **This points to poor governance of pesticide management in India that results in exposure of farmers and workers, contamination of agricultural produce and environmental pollution.**
- About 20 per cent farmers and 44 per cent workers who participated in the study reported exposure and poor health.

COASTAL ECOSYSTEM NORMS

In News: The Comptroller and Auditor General (CAG) of India tabled a report in Parliament on whether steps taken by the Union Environment Ministry to conserve India's coastal ecosystems have been successful.



More on the Topic:

- The government has issued notifications under the Environment Protection Act, 1986, to regulate activities along India's coasts particularly regarding construction.
- The Coastal Regulation Zone Notification (CRZ) 2019, implemented by the Ministry, **classifies the coastal area into different zones to manage infrastructure activities and regulate them.**
- The three institutions responsible for the implementation of the CRZ are the **National Coastal Zone Management Authority (NCZMA) at the Centre, the State/Union Territory Coastal Zone Management Authorities (SCZMAs/UTCZMAs) in every coastal State and Union Territory and the District Level Committees (DLCs) in every district that has a coastal stretch and where the CRZ notification is applicable.**
- These bodies examine if CRZ clearances granted by the government are as per procedure, if project developers once given the go-ahead are complying with conditions, and if the project development objectives under the Integrated Coastal Zone Management Programme (ICZMP) are successful.
- They also evaluate the measures taken up by the government towards achieving the targets under Sustainable Development Goals, a set of United Nations-prescribed targets for countries towards eradicating poverty and becoming sustainable societies.

Findings in the Audit Report:

- The audit pointed out various categories of violations. For one, the Environment Ministry **hadn't notified NCZMA as a permanent body** and it was being reconstituted every few years.
- In the absence of defined membership, it was functioning as an **ad-hoc body.**
- There were instances of the Expert Appraisal Committees, a committee of scientific experts and senior bureaucrats who evaluate the feasibility of an infrastructure project and its environmental consequences **not being present during project deliberations.**
- There were also instances of the members of the EAC being fewer than half of the total strength during the deliberations.
- There were instances of projects being approved despite inadequacies in the Environment Impact Assessment (EIA) reports.

- There was no website to disseminate the information related to the NCZMA, the CAG found, which is a clear violation of the mandated requirements of the Authority.

WILDLIFE PROTECTION AMENDMENT BILL

In News: The Wildlife Protection Amendment Bill was passed by the Lok Sabha recently.

More on the Topic:

- The Bill amends the Wild Life (Protection) Act, 1972. The Act regulates the protection of wild animals, birds and plants.
- The Bill seeks to increase the species protected under the law, and implement the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Key features of the Bill include:

Rationalising schedules:

- Currently, the Act has six schedules for specially protected plants (one), specially protected animals (four), and vermin species (one).
- Present amendment rationalises the Six Schedule presently in the WPA into three schedules – Schedule I for species enjoying highest protection, Schedule II for species subject to lesser protection and Schedule III for plants.

Compliance with Land Acquisition Rehabilitation and Resettlement Act (LARR):

- Makes the provisions of WPA in accordance with LARR.

Invasive alien species:

- The Bills empowers the central government to **regulate or prohibit the import, trade, possession or proliferation of invasive alien species.** Invasive alien species refers to plant or animal species which are not native to India and whose introduction may adversely impact wild life or its habitat. The central government may authorise an officer to seize and dispose the invasive species.

Control of sanctuaries:

- The Act entrusts the Chief Wild Life Warden to control, manage and maintain all sanctuaries in a state. The Chief Wild Life Warden is appointed by the state government.

Expansion of Permitted activities:

- Certain permitted activities such as grazing or movement of livestock, bonafide use of drinking and household water by local communities shall be considered as non-prohibitive under WPA.

Conservation reserves:

- Under the Act, state governments may declare areas adjacent to national parks and sanctuaries as a conservation reserve, for protecting flora and fauna, and their habitat. The Bill empowers the central government to also notify a conservation reserve.

Concerns:

- The proposal to protect native Indian gene pool by controlling invasive alien species is welcome. However, the definition of invasive alien species only considers species from outside India as invasive. Species which are native in some part of the country can be invasive in other parts of the country.

- Standing Committee will be packed by official members, exercise all powers of the SBWL and take decisions independent of SBWL itself. SBWL will end up becoming a rubber stamp.
- **Rationalisation of Schedules in to three has been criticised for unscientific classification.** Some species that should be in Schedule I is in Schedule II. Standing Committee has proposed restructuring of Schedule I and II in a manner that makes them easy to read and look up. Ex. Species are arranged under broad groups (Taxa) and listed by common names of species in alphabetical order.
- **The Bill is in silent on Human wildlife conflict** which is pressing issue right now.

U.S. BILL ON CLIMATE ACTION

In News: The U.S. Senate has approved a Bill titled the Inflation Reduction Act (IRA) 2022 with a focus on climate, healthcare and tax provisions to address inflation.



More on the Topic:

Enabling Provisions:

- The historic legislation invests in a variety of efforts, including **low-carbon technologies, environmental justice initiatives for disadvantaged communities, and tax credits to promote electric vehicle sales.**
- The bill will invest in creating a green bank to finance clean energy technologies and emission-cutting infrastructure, such as residential rooftop solar panels.
- It will also invest in to **climate-smart agricultural practices and clean-vehicle manufacturing facilities.**
- On the resilience side the bill will make available **grants to support fire-resilient forests, forest conservation, and urban tree planting.** The bill also allocates funding for drought resilience in western states.

Mitigation Provisions:

- The bill has provisions for **Tax on large and profitable companies** to meet the green investment.
- It also imposes a fee on **methane leaks from oil and gas drilling.** At the same time, the Bill also aims at more investments in fossil fuels.
- The bill has provisions for expanding oil and gas drilling, with the federal government offering land for onshore and offshore drilling with the prerequisite that the entity will develop renewable energy.
- Thus, it handcuffs the expansion of oil and gas with renewable energy development.

How does the Bill help the U.S. achieve its climate targets?

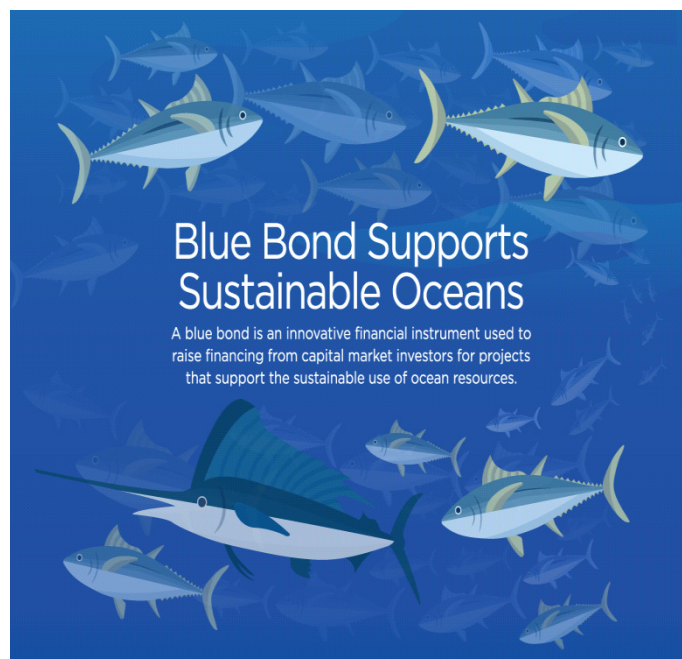
- The Bill being the largest-ever investment in addressing the climate crisis in U.S. history, will help the nation get closer to its climate target of reducing 50-52% emissions below 2005 levels by 2030.
- The investments in the Bill have the potential to reduce greenhouse gas emissions by 31 to 44% by 2030.

Similar climate packages been announced by other countries:

- In 2022, Japan announced its 'Invest in Kishida' plan which aims for a \$1.1 trillion investment to bolster the Japanese economy.
- As part of the plan, the country aims to **transition to clean energy and achieve 46% reduction in greenhouse gas emissions by 2030.**
- In June 2021, the **European Union (EU)** proposed a similar 'Fit for 55' plan to reduce emissions by 55% by 2030.
- The plan is expected to become law soon. Being the largest emitters, both the U.S. and the EU can play a significant role in taking responsibility for historical emissions.

BLUE BONDS

In News: SEBI has proposed blue bonds to give impetus to sustainable financing.



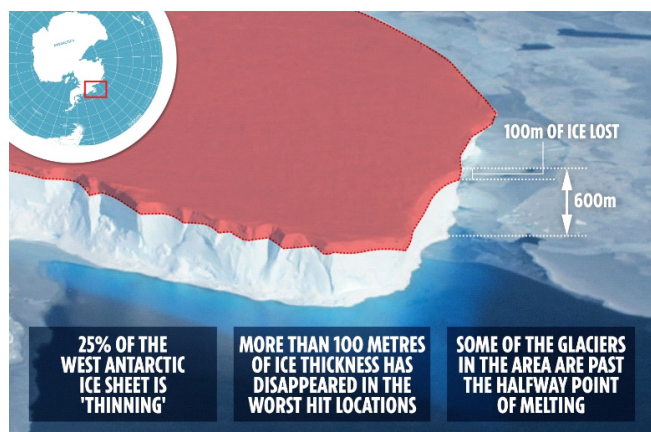
More on the Topic:

- Such securities can be utilised for various blue economy-related activities, including oceanic resource mining and sustainable fishing.
- A blue bond is a relatively new form of a sustainability bond, which is a debt instrument that is issued to support investments in healthy oceans and blue economies.
- Like in the case of conventional bonds, investors lend money to a bond issuer, who agrees to repay the interest every year for the term of the bond plus the capital on a certain day.
- In a blue bond, earnings are generated from the investments in sustainable blue economy projects.

- Furthermore, the issuance of a blue bond enables investors to fulfill their corporate social responsibilities and generate benefit for the ocean and humankind.

ICE SHEET THINNING AT ANTARCTICA

In News: The Researchers have found that the thinning of Antarctic ice as ocean water melts has spread from the continent's outward edges into its interior and it has almost doubled in the western parts of the ice sheet over the past decade.



More on the Topic:

- They also found how iceberg calving the breaking off of ice from a glacier front has changed the Antarctic coastline over the last 25 years.
- When ice shelves dwindle and weaken, the continent's massive glaciers tend to speed up and increase the rate of global sea level rise.
- Thinning and calving have reduced the mass of Antarctica's ice shelves tremendously.
- The net loss of the continent's ice sheet from calving alone in the past 25 years was nearly the size of Switzerland.

GREAT BARRIER REEF

In News: Coral cover in some parts of the Great Barrier Reef has recorded a record high growth.



More on the Topic:

- High coral cover findings can be deceptive because they can result from only a few dominant species that grow rapidly after disturbance (such as mass bleaching).

- The record levels of recovery were fuelled by increases in the fast-growing *Acropora* corals.
- These same corals, however, are extremely susceptible to disturbance and are likely to die out within a few years.
- The Great Barrier Reef spans 2,300 kilometres, comprising more than 3,000 individual reefs.
- It is an exceptionally diverse ecosystem that features more than 12,000 animal species, plus many thousand more species of plankton and marine flora.

About Coral Reefs:

- Corals are invertebrate animals belonging to a large group of colourful and fascinating animals called Cnidaria.
- Each coral animal is called a polyp, and most live in groups of hundreds to thousands of genetically identical polyps that form a 'colony'.
- The colony is formed by a process called budding, which is where the original polyp grows copies of itself.

About Coral Reefs:

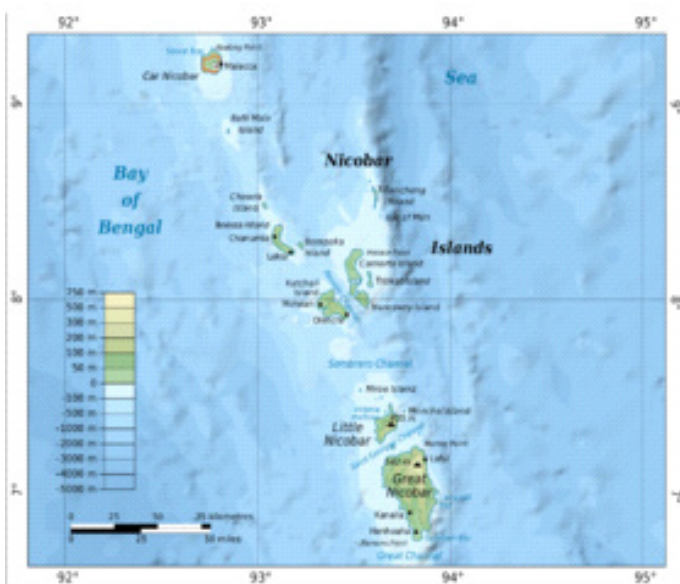
- Coral reefs are underwater ecosystems crucial for ecological balance. They are called the rainforests of the ocean, but for a few years they are under great threat.
- Coral reefs are created by millions of tiny polyps forming large carbonate structures.
- Corals are found across the world's ocean, in both shallow and deep water, but reef-building corals are only found in shallow tropical and subtropical waters.
- This is because the algae found in their tissues need light for photosynthesis and they prefer water temperatures between 22-29°C.

Threats faced By Coral Reefs:

- Natural threats include diseases, predators, and storms.
- Raising ocean temperatures causes ocean acidification.
- The increasing nutrient concentrations leads to excessive phytoplankton growth, and attracts more and more marine life, which may cause strain on the reefs.
- Extreme events of low tides are a reason for bleaching. It exposes the corals to solar and ultraviolet radiations which can induce coral bleaching.
- High rates of land erosion causes silt and other sediments to leach into ocean waters which causes sedimentation and water turbidity. The siltation tends to smother corals and turbidity reduces light availability potentially reducing coral photosynthesis and growth.

MANGROVE COVER OF KATCHAL ISLAND

In News: NASA has recently highlighted the loss of mangrove cover on Katchal island, a part of India's Nicobar archipelago



More on the Topic:

- Katchal Island was previously known as Tihanyu.
- Katchal is inhabited by Nicobari Tribes and Migrated Tamilians (For Rubber plantation workers under Sastri-Srimao Bandaranayaka Pact of 1964).

About Mangroves:

- Mangroves are plants that grow in inter-tidal areas. They are halophytes ('salt-loving'). Most plants can not survive in salty conditions.
- Mangroves live in a unique environment-between land and sea.
- Mangroves represent a characteristic littoral (near the seashore) forest ecosystem.
- These are mostly evergreen forests that grow in sheltered low-lying coasts, estuaries, mudflats, tidal creeks backwaters (coastal waters held back on land), marshes, and lagoons of tropical and subtropical regions.
- Mangroves grow below the high water level of spring tides.

Threats Faced by Mangroves:

- Destroying of Mangroves for agriculture purpose, industry use etc.
- Sea level rise, cyclones and tsunami, coastal erosion, oil spills
- Polluted water also can cause destruction of mangroves.

Significance of Mangroves:

- Mangroves are highly productive ecosystems, and the trees may vary in height from 8 to 20 m. They protect the shoreline from the effect of cyclones and tsunamis.
- They are breeding and spawning ground for many commercially important fishes.
- Mangroves moderate monsoonal tidal floods and reduce the inundation of coastal lowlands.
- They prevent coastal soil erosion. Mangrove roots hold sediments back and prevent erosion.

- They provide numerous employment opportunities to local communities and augments their livelihood.

Mangroves in India:

- The major mangroves in India are found at:
- Sundarban Groves (The mangroves of Sundarbans are the largest single block of tidal halophytic mangroves in the world.
- This mangrove forest is famous for the Royal Bengal Tiger and crocodiles.
- Mahanadi Mangroves
- Krishna Godavari Mangroves
- Mangroves of Gujarat
- Ratnagiri Mangroves
- Goa Mangroves
- Cauvery Deltaic Mangroves
- Andaman Nicobar Mangroves

ELEPHANT RESERVE

In News: Union Environment Ministry has announced 31st elephant reserve of India at Agasthyamalai in Tirunelveli district, Tamilnadu.



More on the Topic:

- India has 31 elephant reserves. In the last three years, Dandeli Elephant Reserve has been notified by Karnataka, Singphan Elephant Reserve by Nagaland and Lemru Elephant Reserve in Chhattisgarh.

Project Elephant:

- Project Elephant was launched in 1992 by the Government of India Ministry of Environment and Forests to provide financial and technical support to wildlife management efforts by states for their free-ranging populations of wild Asian Elephants.
- The project aims to ensure the long-term survival of the population of elephants in their natural habitats by protecting them, their habitats and migration corridors.
- Other goals of Project Elephant are supporting the research of the ecology and management of elephants, creating awareness of conservation among local people, providing improved veterinary care for captive elephants.

BAANSERA BAMBOO-THEMED PARK

In News: An area of 10 hectares of the Yamuna river floodplain at Delhi is being developed as a theme-based multipurpose area using bamboo as a material in biotic and abiotic form.



More on the Topic:

Plantation of Bamboo on a large scale will help address the Capital's problem of air pollution significantly as the Bamboo plant produces about 30 per cent more Oxygen even as it consumes far less water and enriches the soil.

- Bamboo is a tall treelike grass of the Poaceae family with over 1,000 species distributed along the tropical, subtropical and mild temperate regions in Asia, Africa and Americas.
- They can reach up to 30 metres and some species can have growth of as much as 30 cm or more per day.

PORTULACA OLERACEA

In News: Portulaca oleracea, commonly known as purslane is considered as common weed. It offers important clues about creating drought-tolerant crops associated with climate change.



More on the Topic:

- Purslane has the evolutionary adaptations that help it to be both highly productive and drought tolerant.
- Plants have independently evolved various mechanisms to improve photosynthesis. Purslanes adaptation to photosynthesis at difficult environment is unique.
- For instance, corn and sugarcane evolved C4 photosynthesis, which allows the plant to remain productive under high temperatures.

- Succulents such as cacti and agaves possess another type called CAM photosynthesis, which helps them survive in deserts and other areas with little water.
- Both C4 and CAM serve different functions but recruit the same biochemical pathway to act as 'add-ons' to regular photosynthesis.
- Purslane has combination of both.
- Portulaca oleracea has been used as a folk medicine in many countries, acting as a febrifuge, antiseptic, and vermifuge.

WORLD LION DAY

In News: As the world marks International Lion Day, India has 674 Asiatic Lions in the country..

More on the Topic:

- They all are found in only one place the Gir National Park and Wildlife Sanctuary in Gujarat and its surrounding areas.
- The Asiatic Lion, also known as Panthera leo leo, today survives in the wild only in India. However, that was not always the case. In the past, Asiatic lions were found in most of southwest Asia and a large part of the Indian subcontinent.
- Asiatic Lions face significant threats of poaching and genetic inbreeding arising from a single population inhabiting one place.
- **Conservation Status:** Asiatic Lion IUCN Red List: Endangered; African Lion: Vulnerable

PENINSULAR ROCK AGAMAS

In News: Habitat loss and other such features of urbanisation have affected the presence of the Peninsular Rock Agamas in urban centres.



More on the Topic:

- The Peninsular Rock Agama (Psammophilus dorsalis) which is a type of garden lizard has a strong presence in southern India.
- A study carried out by researchers from Indian Institute of Science (IISc), Bengaluru, undertook to characterise urbanisation in the region and also to understand where the rock agama resides in and around Bengaluru specifically.

- The factors that could affect the presence of the lizard and revealed that they are found mainly in rocky places and warm spots.
- Thus, the conservation efforts must point towards retaining rocky patches even while reviving landscapes by planting trees.

SOIL MAPPING

In News: Food and Agriculture Organization (FAO) is digitally mapping soil nutrients in sub-Saharan Africa (SSA) and central America to increase efficiency in using fertilisers.



More on the Topic:

- The project would foster the creation of national soil databases and soil information systems as public goods to be used by policymakers.
- Further, the private sector, and especially farmers can generate long-term benefits from it.
- It will also improve short-term flexibility to adapt to trends in fertilizer markets and climate dynamics without compromising output.

About Soil Mapping:

- Soil Mapping is the process of delineating natural bodies of soils, classifying and grouping the delineated soils into map units, and capturing soil property information for interpreting and depicting soil spatial distribution on a map.
- Soil mapping is a technique which has become usual within the precision farming, which uses the most advanced technology to obtain the most accurate information about the condition of the soil, the weather and the crops.

Significance of Soil Mapping for Africa:

- Sub Saharan Africa presently has challenges such as unsustainable agricultural practices, a lack of resources and capacity development, and nutrient underuse.
- This has resulted in significant soil nutrient depletion, low crop yields, and poverty, leaving many farm families in a scenario of vulnerability and food insecurity.
- Many African countries lack policies regulating soil as well as the capacity, knowledge and experience to plan and implement sustainable soil management programmes.

LIQUID NANO-UREA

In News: Union minister of chemical and fertilizers reviews progress of nano urea Production and sales for financial year 2022-23.



More on the Topic:

- With the inclusion of Nano Urea in the monthly supply plan of the states by the Department of Fertilizers, its availability and reach to the farmers will increase manifold.
- Ministry of chemical and fertilizers directed the department officials for promotion of Nano urea in mission mode to harness its benefits.

Nano Urea:

- Nano Urea is an innovative Nano fertilizer developed indigenously.
- Nano Urea is a patented chemical nitrogen fertiliser developed by IFFCO's Nano Biotechnology Research Centre at Kalol with nano nitrogen particles from 20-50 nm.
- By substituting 45 kg of conventional granulated urea priced at Rs 266 with subsidy (Rs 3966 without subsidy) with a 500-ml bottle of liquid nano-urea, the government can avoid paying for transportation, and storage space, import, and subsidies.
- It is less polluting during production and use than conventional urea because it does not release nitrogen-based greenhouse gases like nitrous oxide into the atmosphere.

Issues with Traditional Granulated Urea:

- Due to its solid essence, it falls into the soil where the crop can easily access all of the nitrogen contained in the granule, which is typically between one and two millimeters in size.
- However, because of burst release, the ammonia escapes into the atmosphere and interacts with the oxygen to form nitrous oxide, a greenhouse gas.

Advantages of Nano-Urea:

- The plant leaf receives a spray of nano-urea. These are nanoscale (20–50 nm) particles. They are easily taken by the plant and cause it to release nitrogen.

- Additionally, they increase the levels of protein, chlorophyll, and nucleotides like RNA or DNA within plant cells as well as the enzymes responsible for nitrogen metabolism.
- It might raise the agricultural output of the tested crops in various agroclimatic zones across India by 7 to 8%.
- It improved the crop's quality and grain protein content.

THE BIOLOGICAL DIVERSITY (AMENDMENT) BILL, 2021

In News: A joint parliamentary committee reviewing a contentious draft legislation to modify India's biodiversity conservation law has accepted amendments proposed by the government.

More on the Topic:

- The Bill amends the Biological Diversity Act, 2002 to simplify compliance requirements for domestic companies.
- Users of codified traditional knowledge and AYUSH practitioners will be exempted from sharing benefits with local communities.
- The Bill removes research and bio-survey activities from the purview of benefit sharing requirements.
- Benefit sharing will be based on terms agreed between the user and the local management committee represented by the National Authority.
- The Bill decriminalises all offences under the Act.

Reasons for amendment:

- Providing a conducive environment for the Ayush medicine, seed, industry and research sectors by simplifying the process.
- They also sought to simplify the patent application process, widen the scope of access and benefit-sharing with local communities.
- Ayush companies have been seeking relaxation of the benefit-sharing provisions.

Key Issues and Analysis:

- The term codified traditional knowledge has not been defined. A broad interpretation might exempt all local traditional knowledge from benefit sharing requirements.
- The Bill removes the direct role of local communities in determining benefit sharing provisions.
- The Bill decriminalises offences under the Act and instead provides for a wide range of penalties.
- Further, the Bill empowers government officials to hold inquiries and determine penalties. It may be questioned whether it is appropriate to confer such discretion to government officials.

Context of the Bill:

- The BDA, 2002 was enacted for the conservation of biological diversity and fair, equitable sharing of the monetary benefits from the commercial use of biological resources and traditional knowledge.

- The main intent of this legislation is to protect India's rich biodiversity and associated knowledge against their use by foreign individuals.
- It seeks to check biopiracy, protect biological diversity and local growers through a three-tier structure of central and state boards and local committees.
- The Act provides for setting up of a National Biodiversity Authority (NBA), State Biodiversity Boards (SBBs) and Biodiversity Management Committees (BMCs) in local bodies.
- The NBA will enjoy the power of a civil court.

UPDATED NATIONALLY DETERMINED CONTRIBUTION

In News: The Union cabinet has approved India's updated Nationally Determined Contribution (NDC), soon to be submitted to the United Nations Framework Convention on Climate Change (UNFCCC).



United Nations
Framework Convention on
Climate Change

More on the Topic:

- An NDC is a set of long-term goals to cut carbon emissions and adapt to climate impacts that every country signatory to the Paris Agreement has to provide, and update every five years.
- India's updated targets include reducing emissions intensity of its GDP by 45% by 2030 from the 2005 level, and achieve 50% cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030.
- The updated NDC also highlights the importance of changing lifestyles for the environment in tackling climate change through a mass movement for 'LIFE' – 'Lifestyle for Environment' as a key to combating climate change".
- This update to India's existing NDC translates the 'Panchamrit' announced at COP 26

(held in Glasgow, United Kingdom) into enhanced climate targets.

- India's updated NDC will be implemented over the period 2021-2030 through programs and schemes of relevant Ministries /departments and with due support from States and UTs.

About Panchamrit Strategy of India:

- India has presented the following five nectar elements (Panchamrit) of India's climate action:
- Reach 500 GW Non-fossil energy capacity by 2030.
- 50 per cent of its energy requirements from renewable energy by 2030.

- Reduction of total projected carbon emissions by one billion tonnes from now to 2030.
- Reduction of the carbon intensity of the economy by 45 per cent by 2030, over 2005 levels.
- Achieving the target of net zero emissions by 2070.

India's Achievement related to its NDC:

- **Emission intensity reduction:** India promised a reduction of 33 to 35% from 2005 levels. India has estimated to have achieved 30% so far.
- **Share of non-fossil fuels in installed electricity capacity:** 40% was the promised target. Achieved 41.5% by end of June 2022.

BIOMINING

In News: Biomining at different part of India is becoming a viable choice.

TREATING LEGACY WASTE AT BRAHMAPURAM

ABOUT BIOMINING

- Biomining is the technique of extraction and segregation of minerals and useful materials from mounds of waste
- The legacy waste would be treated scientifically for removing undigested organic matter
- Then, the remaining waste will be sorted
- Reusable items like plastic, glass, rubber, metals, etc. will be given to those industries or agencies which use them as raw materials
- Non-biodegradable waste will be capped in a scientific manner



GENERAL CONSTITUENTS OF LEGACY WASTE

- Soil | 35%
- Recyclable items | 5%
- Synthetic textiles | 4%
- Plastic of various grades | 16%
- Non-biodegradable items | 40%

More on the Topic:

- Biomining is the process of using microorganisms (microbes) to extract metals of economic interest from rock ores or mine waste.
- During the process garbage is treated with bio-organisms or natural elements like air and sunlight so that the biodegradable elements in the waste break down over time.
- Biomining method has been proposed by the Central Pollution Control Board (CPCB) for the effective disposal of legacy wastes.
- Legacy wastes are the wastes that have been collected and kept for years at some barren land or a place dedicated for Landfill (an area to dump solid waste).

RIGHT TO A CLEAN AND HEALTHY ENVIRONMENT

In News: The UN has declared access to clean, healthy environment as universal human right.

More on the Topic:

- The scheme is being implemented by the Ministry of Minority Affairs.

- The resolution will help to reduce environmental injustices and protection gaps.
- It can empower people, especially those in vulnerable situations, including environmental human rights defenders, children, youth, women and indigenous people.
- The declaration has been adopted by over 160 UN member nations, including India.
- This will encourage countries to incorporate the right to a healthy environment in national constitutions and regional treaties.
- However, the declaration is not legally binding.
- It also recognizes that Climate change and environmental degradation are the most critical threats awaiting humanity in the future.
- Unsustainable management and use of natural resources, the pollution of air, land and water, the unsound management of chemicals and waste, and the resulting loss in biodiversity interfere with the enjoyment of this right.

NATIONAL TIGER CONSERVATION AUTHORITY

In News: National Tiger Conservation Authority has decided not to allow any new construction in the core areas of tiger reserves.



More on the Topic:

- Project Tiger was launched in 1973 with 9 tiger reserves for conserving our national animal, the tiger. Currently, the Project Tiger coverage has increased to 53, spread out in 18 tiger range states.
- The tiger reserves are constituted on a core/buffer strategy. The core areas have the legal status of a national park or a sanctuary, whereas the buffer or peripheral areas are a mix of forest and non-forest land, managed as a multiple-use area.

Different Areas within the Tiger reserve:

- **Core Zone (critical Wildlife habitats):**
- The core area is kept free of biotic disturbances and forestry operations, where the collection of minor forest produce, grazing, human disturbances are not allowed within.
- These areas are required to be kept for the purposes of tiger conservation, without affecting the rights of the Scheduled Tribes or such other forest dwellers.

- These areas are notified by the State Government in consultation with an Expert Committee (constituted for that purpose).
- **Buffer Area:**
- Buffer area is the area peripheral to the critical tiger habitat or core area providing supplementary habitat for dispersing tigers, besides offering scope for co-existence of human activity.
- The limits of the buffer/ peripheral areas are determined on the basis of scientific and objective criteria in consultation with the Gram Sabha and an Expert Committee constituted for the purpose.

About National Tiger Conservation Authority:

- The National Tiger Conservation Authority (NTCA) is a statutory body constituted under Wildlife (Protection) Act, 1972.
- NTCA was established in 2005, following a recommendation of the Tiger Task Force constituted by the then Prime Minister of India to reorganised management of Project Tiger
- The National Tiger Conservation Authority is set up under the chairmanship of the minister for environment and forests.

LOKTAK LAKE

In News: Manipur government has ordered to remove all floating houses and fishing structures on Loktak lake.



More on the Topic:

- It is the largest freshwater lake in Northeast India (Manipur), and is famous for the phumdis.
- Phumdis are a series of floating islands of entangled vegetation formed by the accumulation of organic debris and biomass with soil, exclusive to the Loktak Lake in Manipur. Its thickness varies from few centimeter to two meters.
- The humus of phumdi is black in colour and very spongy with large number of pores. It floats with 4/5 part under water.
- It is the only floating national park in the world.
- It has been designated as a wetland of international importance under the Ramsar Convention in 1990.
- It is also listed under the Montreux Record in 1993, "a record of Ramsar sites where changes in ecological character have occurred, are occurring or are likely to occur".

Threats Faced:

- It is presently under threat due to various factors, including human pressure.
- The Ithai barrage, commissioned in 1983, has brought about drastic changes in the characteristics of the wetland.

LIGHT-MANTLED ALBATROSS

In News: Bird researchers have recorded sighting of a light-mantled albatross (*Phoebastria palpebrata*) in Tamil Nadu's Rameswaram.

More on the Topic:

- The sighting is considered Asia's first sighting of the Light-mantled Albatross, a seabird native to the Antarctic seas.
- This seabird habits over a circumpolar distribution in the Southern Ocean and forages over the cold Antarctic.
- They breed on several sub-Antarctic islands and forage over cold Antarctic waters.
- The bird is listed as 'near threatened' on the IUCN Red List.

DIAMMONIUM PHOSPHATE

In News: India will become Aatmanirbhar In Diammonium Phosphate (DAP).

Chemical Properties

Chemical formula:	$(\text{NH}_4)_2\text{HPO}_4$
Composition:	18% N 46% P_2O_5 (20% P)
Water solubility (20 °C):	588 g/L
Solution pH:	7.5 to 8

More on the Topic:

- Diammonium phosphate (DAP) is the world's most widely used phosphorus fertilizer.
- India is the largest agricultural consumer of DAP in the world.
- DAP fertilizer is an excellent source of Phosphorus and nitrogen (N) for plant nutrition. It's highly soluble and thus dissolves quickly in soil to release plant-available phosphate and ammonium.
- DAP also acts as a fire retardant.
- DAP is used in various industrial processes, too, such as metal finishing. It's commonly added to wine to sustain yeast fermentation and to milk to produce cheese cultures.

GEOGRAPHY

TONGA VOLCANO

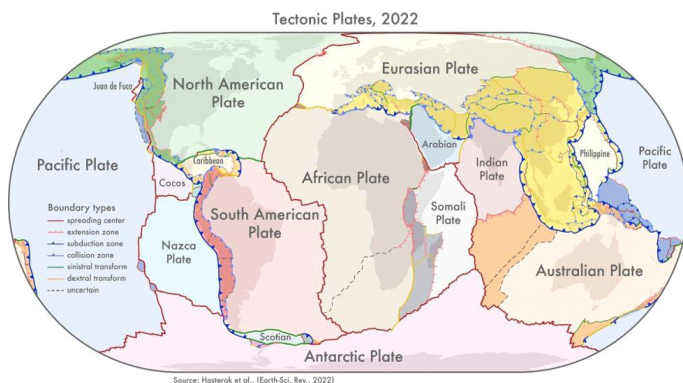
In News: Volcanic eruption in Tonga is likely to add to global warming and the depletion of Earth's ozone layer.

More on the Topic:

- Tonga eruption may be the **first volcanic eruption observed to impact climate** not through surface cooling caused by volcanic sulfate aerosols, but rather through surface warming caused by excess water vapour.
- Underwater eruption of Hunga Tonga-Hunga Ha'apai volcano injected 146 teragrams (1 teragram equals a trillion grams) of water vapour (a greenhouse gas) into the stratosphere.
- Excess stratospheric H₂O will persist for years, could affect stratospheric chemistry and dynamics and may affect surface warming.

NEW MAP OF EARTH'S TECTONIC PLATES TO HELP UNDERSTAND QUAKES, VOLCANOES BETTER

In News: Researchers from the University of Adelaide, Australia, have carried out a new study that includes an updated map of the earth's tectonic plates.



More on the Topic:

- The material will help in forming a better understanding of natural hazards like earthquakes and volcanoes.
- A tectonic plate "is a massive, irregularly shaped slab of solid rock", made up of lithosphere or the earth's top layer. Tectonic plate movements often lead to earthquakes and volcanoes.
- The study focussed into the past construction of continents like the first supercontinent, Vaalbara.
- Vaalbara fragmented to form other supercontinents over the years, the last being Pangea, which existed some 335-65 million years ago. Pangea again gave way to the seven modern continents which make the earth's land surface today.
- The last time the tectonic plate model was updated was back in 2003.

Significance of the New Study:

- The new study added several new microplates to the existing tectonic plate model like the Macquarie microplate which sits south of Tasmania and the Capricorn microplate that separates the Indian and Australian plates.

- The new model now includes all the deformation zones north of India as the plate bulldozes its way into Eurasia.
- The plate model can be used to **evaluate risks from natural hazards**; the province model can be used for **further exploration of minerals** and the orogeny model for a better understanding of the evolution of the earth.
- **Orogeny, or mountain building, is the result of collision between two landmasses.** This may occur via collision of continental crust (continent-continent collision) or when oceanic and continental crust collide (ocean-continent collision).

TWIN TROPICAL CYCLONES

In News: Cyclones Asani and Karim, titled after the northern and southern hemispheres, are twin cyclones that formed at almost uniform longitude in the recent month.



More on the Topic:

- The twin tropical cyclones are induced by Rossby waves near the equator.
- These symmetric tropical storms are created by the interaction of the wind and monsoon systems, as well as the Earth system.
- **Rossby waves are massive ocean surges with a wavelength range of 4,000–5,000 kms.**
- These waves are named after notable meteorologist Carl-Gustaf Rossby, who was the first to illustrate that all these waves emerged due to the earth's rotation.

Structure of the Twin Cyclones:

- This structure has a whirlpool in the northern latitudes and the other in the southern region that are mirror images of one another.
- The vortex in the northern latitudes moves **anticlockwise and has a positive turn**, whereas the one in the southern hemisphere turns **clockwise and it has a negative spin**.
- **The Coriolis effect**—a strength steered by Earth's axis diverts sweeping winds in one way in the Northern Hemisphere as well as the opposite way in the Southern Hemisphere.

INTERNATIONAL RELATIONS

NEW STRATEGIC ARMS REDUCTION TREATY (NEW START) TREATY

In News: Russia has halted US inspections of nuclear arsenal under New START treaty.



More on the Topic:

- New START (Strategic Arms Reduction Treaty) was the last remaining arms reduction pact between the former Cold War rivals and caps to 1,550 the number of nuclear warheads that can be deployed by Russia and United States of America.
- It entered into force on 5th February, 2011.
- It continues the bipartisan process of verifiably reducing U.S. and Russian strategic nuclear arsenals by limiting both sides to 700 strategic launchers and 1,550 operational warheads.
- Its duration was for ten years that is till 2021, but it was extended by five more years till 2026.

UNITED NATIONS MILITARY OBSERVER GROUP IN INDIA AND PAKISTAN (UNMOGIP)

In News: Rear Admiral Guillermo Pablo Rios of Argentina has been appointed as the Head of Mission and Chief Military Observer for the United Nations Military Observer Group in India and Pakistan (UNMOGIP).

More on the Topic:

- UNMOGIP emerged from U.N. Security Council Resolution 39 of January 1948 that set up the U.N. Commission for India and Pakistan (UNCIP).
- The Karachi Agreement of July 1949 firmed up the role of UN-level military observers and permitted supervision of the Cease Fire Line established in Jammu and Kashmir.
- India officially maintains that the UNMOGIP's role was "overtaken" by the Simla Agreement of 1972 that established the Line of Control or the LoC which with "minor deviations" followed the earlier Cease Fire Line.
- Pakistan however did not accept the Indian argument and continued to seek cooperation from the UNMOGIP.
- As a result of this divergent policies, Pakistan continues to lodge complaints with the UNMOGIP against alleged Indian ceasefire violations whereas India has

not officially gone to the UNMOGIP since 1972 with complaints against Pakistan.

- In view of the difference of opinion between two contesting sides – India and Pakistan – the U.N. has maintained that the UNMOGIP could be dissolved only with a decision from the U.N. Security Council.

PORCUPINE STRATEGY

In News: Taiwan is focusing on Porcupine strategy.



More on the Topic:

- This strategy focuses on solidifying a state's defences to exploit the enemy's weaknesses rather than taking on its strengths.
- It was first propounded by US Naval War College research professor William S Murray in 2008. The world marks International Lion Day, India has 674 Asiatic Lions in the country.
- It is about building defences to ensure that Taiwan "could be attacked and damaged but not defeated, at least without unacceptably high costs and risks".
- It has two defensive layers.
- The outer layer is about intelligence and reconnaissance to ensure defence forces are fully prepared. Behind this come plans for guerrilla warfare at sea with aerial support from sophisticated aircraft provided by the US.
- The innermost layer relies on the geography and demography of the island.

ISRAEL PALESTINE CONFLICT

In News: At United Nations Security Council meeting, India called for resuming dialogue between Israel and Palestine, hours after a fresh round of attack on Gaza by security forces of Tel Aviv ended in a ceasefire.

Israel's boundaries today



More on the Topic:

- Recent escalation in Palestine has resulted in losing many lives of Palestinians.
- The Indian diplomat advocated in favour of a "two-state solution", which she said was the only way to ensure long-term peace.
- "Two-state solution" would establish Palestine as an independent state in Gaza and most of the West Bank, leaving the rest of the land to Israel.
- Though the two-state plan is clear in theory, the two sides are still deeply divided over how to make it work in practice.
- The need of the hour is to treat this conflict as an Israeli-Arab conflict rather Israel-Palestine.
- The conflict is not only between Israel and Palestine but also with other Arab countries such as Egypt, Jordan, Iran, Syria etc.
- All these stakeholders have to participate in the negotiations and the final agreement should be recognized formally by each one of them along with UN general assembly and security council.
- It is time for the international community to find a just and lasting peaceful solution to the World's most intractable conflict soon.

Indian Policy Towards Israel and Palestine:

- India has always played a proactive role in garnering support for the Palestinian cause at multilateral forums.
- India voted against the creation of Israel in historic Palestine in 1947 in the UN General Assembly.
- India established full diplomatic relations with Israel in 1992.
- Right now India is following a **de hyphenation policy** which indicates India's relationship with Israel would stand on its own merits, independent and separate from India's relationship with Palestine.

INTERNATIONAL TELECOMMUNICATION UNION'S (ITU)

In News: Ministry of Communications hosted the International Telecommunication Union's (ITU) RSF for Asia and Oceania region



More on the Topic:

- The International Telecommunication Union (ITU) is the United Nations specialized agency for information and communication technologies – ICTs.
- Founded in 1865 to facilitate international connectivity in communications networks.
- It allocates global radio spectrum and satellite orbits, develop the technical standards that ensure networks and technologies seamlessly interconnect, and strive to improve access to ICTs to underserved communities worldwide.
- RSF is a platform for exchange of ideas, discussing standardization topics like Sustainable Digital Transformation and Role of ITU Standards, Harnessing Technologies for Digital and Financial Inclusion in Emerging Markets, evolving Data Value Chain and Digital Health

MINERALS SECURITY PARTNERSHIP (MSP)

In News: India is working ways to get an entry in to US

Rare Earth Elements														Y 39
La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
57	58	59	60	61	62	63	64	65	66	67	68	69	70	71
Lanthanides														

H																	He
Li	Be											B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba	Lu	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	An	Lr														

More on the Topic:

- The US and 10 partners – Australia, Canada, Finland, France, Germany, Japan, the Republic of Korea (South Korea), Sweden, the United Kingdom, and the European Commission – have come together to form the MSP.
- The new grouping is aimed at catalysing investment from governments and the private sector to develop strategic opportunities.
- The new grouping could focus on the supply chains of minerals such as Cobalt, Nickel, Lithium, and also the 17 'rare earth' minerals.
- The alliance is seen as primarily focused on evolving an alternative to China, which has created processing infrastructure in rare earth minerals and has acquired mines in Africa for elements such as Cobalt.

What are rare earth elements?

- The 17 rare earth elements (REE) include the 15 Lanthanides (atomic numbers 57 which is Lanthanum to 71 in the periodic table) plus Scandium (atomic number 21) and Yttrium (39).
- REEs are classified as light RE elements (LREE) and heavy RE elements (HREE).
- Some REEs are available in India such as Lanthanum, Cerium, Neodymium, Praseodymium and Samarium, etc.
- Others such as Dysprosium, Terbium, and Europium, which are classified as HREEs, are not available in Indian deposits in extractable quantities.
- Hence, there is a dependence on countries such as China for HREEs, which is one of the leading producers of REEs, with an estimated 70 per cent share of the global production.

Why are these minerals important?

- Minerals like Cobalt, Nickel, and Lithium are required for batteries used in electric vehicles.
- REEs are an essential although often tiny component of more than 200 consumer products, including mobile phones, computer hard drives, electric and hybrid vehicles, semiconductors, flatscreen TVs and monitors, and high-end electronics.
- India is seen as a late mover in attempts to enter the lithium value chain, coming at a time when EVs are predicted to be a sector ripe for disruption.

What is India's major concern?

- If India is not able to explore and produce these minerals, it will have to depend on a handful of countries, including China, to power its energy transition plans to electric vehicles.
- That will be similar to our dependence on a few countries for oil.
- The reason India would not have found a place in the MSP grouping is because the country does not bring any expertise to the table.
- In the group, countries like Australia and Canada have reserves and also the technology to extract them, and countries like Japan have the technology to process REEs.

POLICY ON INDIAN DIASPORA

In News: The committee on External Affairs Ministry also expressed its displeasure over the government not yet having an authentic database of the Indian diaspora and policy.

Home away from home: Where Indians go

Rank	Country	No of Indians (in million)	% of total Indian diaspora
1	UAE	3.5	22.4
2	US	2.0	12.8
3	Saudi Arabia	1.9	12.1
4	Kuwait	1.0	6.4
5	Oman	0.7	4.5
6	UK	0.7	4.5
7	Qatar	0.6	3.8

Total 15.6 million

More on the Topic:

- The Indian diaspora comprising over 18 million PIOs (persons of Indian origin) and 13 million NRIs is one of the largest overseas communities globally and the government must engage with it effectively.
- A "clear-cut policy" on India's diaspora is yet to be drafted by the government despite having a huge diaspora playing a very important role in the socio-economic development of their home country.
- The committee suggested that the (external affairs) ministry should bring out a policy document on its diaspora to serve as a guiding principle for deeper and wider engagement with the diaspora community.
- Establish Community Welfare Wing in all important Indian Missions/Posts on a priority basis.
- One Stop Centres for helping distressed Indian women abroad should be launched immediately.
- Indian missions abroad should play a more proactive role in developing closer contact with community.
- Comprehensive rehabilitation scheme for those workers who lost their jobs due to pandemics or other disasters to secure means of livelihood for them and their families.

About Significance of Indian Diaspora:

- Indian diaspora is an important part of India's "soft diplomacy", which sometimes proves to be more effective in creating news paths for the country of origin.
- For example, Indian diaspora played a critical in the fructification of Indo-US Nuclear deal.
- The migration of qualified Indians outside created brain drain. Of late, it has emerged as a significant source of trade and investment in India.
- The diaspora is a source of large inflows of remittances, which has been helping balance the current account.
- As per World Bank report on remittances, India is largest recipient country of world in 2021 and its remittances is expected to grow by 2.6% in 2022.

COALITION FOR DISASTER RESILIENT INFRASTRUCTURE

In News: The Coalition for Disaster Resilient Infrastructure (CDRI) and the Government of India had (GoI) signed a headquarters agreement recently. The agreement will enable the status of an 'Independent and International Legal Entity' for CDRI.



More on the Topic:

- Agreement will enable CDRI to pursue functions internationally with all rights, immunities, and privileges, as per United Nations (Privileges & Immunities) Act 1947.

- India enacted UN (Privileges & Immunities) Act, 1947 to give effect to Convention on Privileges and Immunities of United Nations, adopted by UN General Assembly in 1946.
- Headquarter Agreement is an agreement between an international organisation and host state to determine the privileges and immunities necessary for its good functioning.

The Coalition for Disaster Resilient Infrastructure (CDRI):

- The Coalition for Disaster Resilient Infrastructure (CDRI) is an international coalition of countries, United Nations (UN) agencies, multilateral development banks, the private sector, and academic institutions, that aims to promote disaster-resilient infrastructure.
- Its objective is to promote research and knowledge sharing in the fields of infrastructure risk management, standards, financing, and recovery mechanisms.
- It was launched by the Indian Prime Minister Narendra Modi at the 2019 UN Climate Action Summit in September 2019.
- Since its inception, 31 countries, 6 international organisations and 2 private sector organisations have joined CDRI as members.

Objectives:

- CDRI's initial focus is on developing disaster-resilience in ecological, social, and economic infrastructure.
- It aims to achieve substantial changes in member countries' policy frameworks and future infrastructure investments, along with a major decrease in the economic losses suffered due to disasters.

INDIA - EUROPEAN UNION RELATIONS

In News: While India celebrates its 75th year of Independence, it also celebrates 60 years of diplomatic relations with the European Union (EU).



More on the Topic:

- India-EU relations date to the early 1960s, with India being amongst the first countries to establish diplomatic relations with the European Economic Community.
- A cooperation agreement signed in 1994 took the bilateral relationship beyond trade and economic cooperation.

- At the 5th India-EU Summit at The Hague in 2004, the relationship was upgraded to a 'Strategic Partnership'.
- The two sides adopted a Joint Action Plan in 2005 (which was reviewed in 2008) that provided for strengthening dialogue and consultation mechanisms in the political and economic spheres, enhancing trade and investment, and bringing peoples and cultures together.

Important Areas of Cooperation between EU and India:

- **Trade:** The EU is India's largest trading partner, while India is the EU's 9th largest trading partner. It is the second-largest destination for Indian exports after the United States.
- The EU's share in foreign investment inflows to India has more than doubled from 8% to 18% in the last decade. This makes the EU an important foreign investor in India.
- India is the benefactor of the unilateral preferential tariffs under the EU Generalised Scheme of Preferences (GSP).
- **Security and Defence:** EU and India have instituted several mechanisms for greater cooperation on pressing security challenges like counterterrorism, maritime security, and nuclear non-proliferation.
- **Environment:** EU and India also cooperate closely on the Clean Ganga initiative and deal with other water-related challenges in coordinated manner.
- **Science & Technology:** Steering Committee meets annually to review scientific cooperation. Both have official mechanisms in fields such as Digital Communications, 5G technology, Biotechnology, artificial intelligence etc.
- ISRO has a long-standing cooperation with the European Union, since 1970s. It has contributed towards the EU's satellite navigation system Galileo.

Present Significance of EU for India:

- India is striving for Diversification of global support on international platforms. (e.g., UNSC). For this EU support is essential.
- BREXIT provides new political and economic dimension in India. For capitalising it needs EU Cooperation.
- India is a long term advocate of open and safe Indo Pacific. EU cooperation in this arena is essential.
- India is dealing with Chinese aggression for a quite long period now. EU support is needed in dealing with this challenge.

Present Significance of India to EU:

- Presently EU is trying to Reduce its over-dependence on China. For this India's cooperation is essential.
- Both India and EU shares Common interest in avoiding polarization of global world order.

UKRAINE'S ODESA PORT

In News: First grain cargo ship has left Ukraine's Odesa port.



More on the Topic:

- The so-called Black Sea Grain Initiative involving signing of separate accords by Russia and Ukraine with the UN and Turkey on July 22 provides for exports from three ports: Odesa, Chornomorsk and Yuzhny.
- Under the deal, the ships are to be guided through the Black Sea waters by Ukraine's navy to avoid mined areas.
- The milestone comes after the United Nations and Turkey signed agreements with Russia and Ukraine to re-open Ukraine's Black Sea ports and resume exports of grain, cooking oil and fertilizer.
- Odesa is the third most populous city and municipality in Ukraine and a major seaport and transport hub located in the south-west of the country, on the north western shore of the Black Sea.
- Odessa is a warm-water port. The city of Odessa hosts both the Port of Odessa and Port Yuzhne, a significant oil terminal situated in the city's suburbs

SCIENCE AND TECHNOLOGY

BS VI VEHICLES

In News: The Union Ministry of Road Transport and Highways has allowed retrofitment of CNG and LPG kits in petrol and diesel vehicles that are compliant with BS-VI emission norm.

Mechanics of BS-VI

► Bharat Stage VI (BS-VI) norms will take effect in India from **1 April 2020**

► BS-VI is the **most advanced emission standard** for automobiles and is equivalent to Euro-VI norms

► In order to **reduce vehicular pollution**, the government decided to leapfrog from BS-IV to BS-VI

► The new norms make on-board diagnostics (**OBD**) **mandatory** for all vehicles



► The OBD unit can identify likely **areas of malfunction** by means of default codes stored on a computer

► For two-wheelers, manufacturers will introduce a **fuel injection system**—a first in India

More on the Topic:

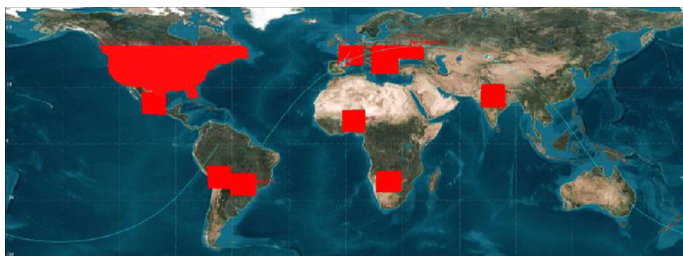
- Bharat stage (BS) emission standards are laid down by the government to regulate the output of air pollutants from internal combustion engine and spark-ignition engine equipment, including motor vehicles.
- The central government has mandated that vehicle makers must manufacture, sell and register only BS-VI (BS6) vehicles from April 1, 2020.
- The abbreviation BS, as mentioned above, refers to 'Bharat Stage'. It is prefixed to the iteration of the actual emission norms. The primary rules with the sobriquet Asian nation 2000 were introduced in the year 2000, with the second and third iterations being introduced in 2001 and 2005 with the sobriquet BSII (BS2) and BSIII (BS3), respectively.
- The fourth iteration, BSIV, was introduced in 2017 and therefore the delay between the introduction of BS3 and BS4 resulted in fast-tracking the BSVI or BS6 emission norms rather than BSV (BS5) norms.

BS-VI Standards:

- BS-VI emission norms set the maximum permissible levels for pollutants that an automotive or a two-wheeler exhaust can emit.
- Sulphur content in BS-IV fuel has five times lower (10ppm) as compared to sulphur content in BS-IV fuel (50ppm).
- The nitrogen oxide emission level for diesel engines and petrol engines will decline by 70% and 25% with the BS-VI standards.
- It also introduced Diesel Particulate Filter (DPF) and Selective Catalytic Reduction (SCR).

NASA'S ECOSTRESS

In News: NASA's ECOSystem and Spaceborne Thermal Radiometer Experiment on Space Station (ECOSTRESS) instrument aboard NASA's space station has helped the researchers better understand why some parts of a wildfire burn more intensely than others.



More on the Topic:

- ECOSTRESS measures the temperature of the ground, which is hotter than the air temperature during the daytime. The primary mission of the instrument is to identify plants' thresholds for water use and water stress, giving insight into their ability to adapt to a warming climate.
- The study found relationships between the intensity of a wildfire and the water stress in plants.
- It measures combined evaporation and transpiration, known as evapotranspiration.
- Rate at which plant releases water can predict wildfires.

SMALL SATELLITE LAUNCHING VEHICLE

In News: The inaugural small satellite launch vehicle (SSLV) of the Indian Space Research Organization (ISRO) did not launch as planned.



More on the Topic:

- The mission failed because the SSLV-D1 placed the satellites in an elliptical orbit rather than a circular one.
- The divergence was caused by the logic's failure to

recognise a sensor failure and proceed with a salvage step.

About SSLV:

- ISRO developed a small satellite launch vehicle (SSLV) to cater the launch of up to 500 kg satellites to Low Earth Orbits on 'launch-on-demand' basis.
- SSLV is configured with three solid stages. The satellite insertion into the intended orbit is achieved through a liquid propulsion-based velocity trimming module.
- SSLV is capable of launching Mini, Micro, or Nanosatellites (10 to 500 kg mass) to a 500 km planar orbit.

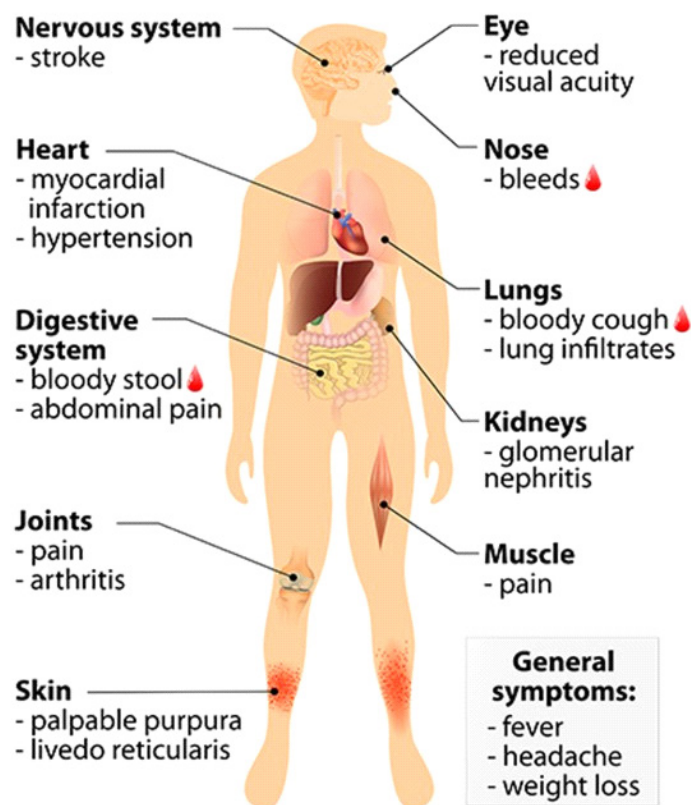
Advantages of SSLV:

- SSLV provides low-cost access to Space on demand basis. It offers low turn-around time, flexibility in accommodating multiple satellites, launch-on-demand feasibility, minimal launch infrastructure requirements, etc.
- Unlike PSLV and GSLV, SSLV can be assembled both vertically and horizontally.
- Requires lesser infrastructure and manpower, as it can be assembled by of team of six experts within seven days.

VASCULITIS DISEASE

In News: An actor has suffered from Vasculitis.

VASCULITIS



More on the Topic:

- Vasculitis involves inflammation of the blood vessels.
- The inflammation can cause the walls of the blood vessels to thicken, which reduces the width of the

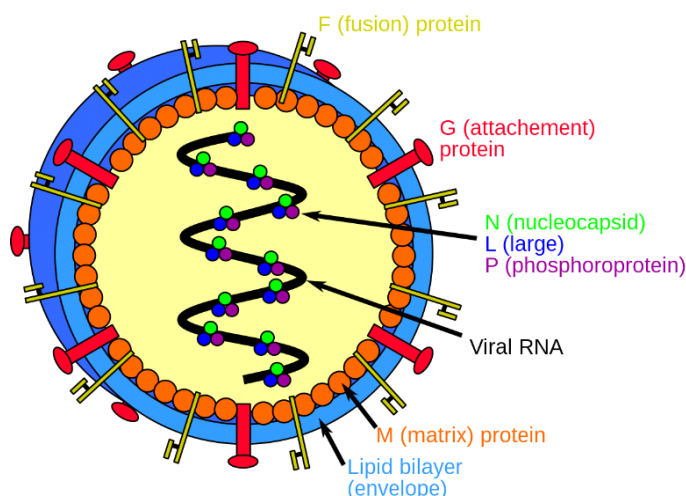
passageway through the vessel. If blood flow is restricted, it can result in organ and tissue damage. There are many types of vasculitis, and most of them are rare.

Causes:

- Infections, such as hepatitis B and hepatitis C.
- Blood cancers.
- Immune system diseases, such as rheumatoid arthritis, lupus and scleroderma.
- Reactions to certain drugs.

LANGYA HENIPAVIRUS

In News: Langya henipavirus has infected nearly three dozen farmers and other residents in China.

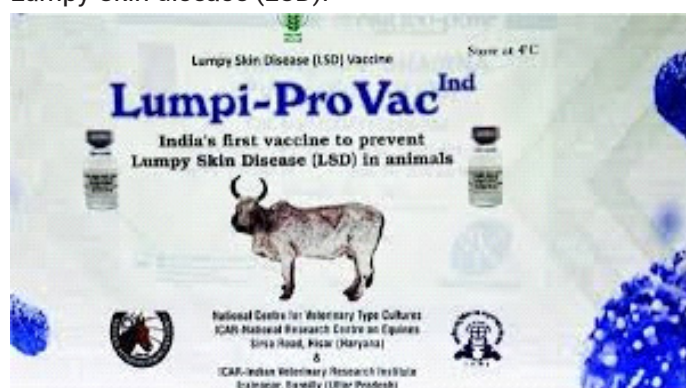


More on the Topic:

- it is a zoonotic virus.
- It may have spread directly or indirectly to people from shrews -- small mole-like mammals found in a wide variety of habitats.
- It is also detected among domestic goats and dogs.
- Symptoms include Fever, fatigue, cough, loss of appetite etc. with health impacts such as Renal and Liver Failure.

LUMPY SKIN DISEASE (LSD)

In News: The Union Minister for Agriculture and Farmers Welfare has launched the indigenous vaccine Lumpi-ProVacInd (homologous live-attenuated) to protect livestock from Lumpy Skin disease (LSD).



More on the Topic:

- Lumpy skin disease (LSD) is a viral disease of cattle and water buffalo that causes relatively low mortality; however, the disease can result in animal welfare issues and significant production losses.
- LSD is caused by virus called the Capripoxvirus and is genetically related to the goatpox and sheep pox virus family.
- The disease is spread primarily by biting insects such as certain species of flies, mosquitoes and possibly ticks.
- The disease can also be spread by fomites through such things as contaminated equipment and in some cases directly from animal to animal.
- It does not pose a risk to human health.

OCEAN THERMAL ENERGY CONVERSION PLANT

In News: The National Institute of Ocean Technology, an autonomous institute under the Union Ministry of Earth Sciences (MoES) is establishing an Ocean Thermal Energy Conversion plant with a capacity of 65 kilowatt (kW) in Kavaratti, the capital of Lakshadweep.

More on the Topic:

- The plant will power the one lakh litre per day low temperature thermal desalination plant, which converts seawater into potable water.
- Ocean thermal energy is derived from the solar energy that is absorbed by the oceans.
- OTEC is a process for producing energy by harnessing the temperature differences (thermal gradients) between ocean surface waters and deep ocean waters.
- 1°C variation in seawater temperature can lead to a 15% energy yield difference in output.
- OTEC systems use a temperature difference (of at least 77° Fahrenheit/25 degrees Celsius) to power a turbine to produce electricity.
- Warm surface water is pumped through an evaporator containing a working fluid.
- The vaporized fluid drives a turbine/generator. Vaporized fluid is turned back to a liquid in a condenser cooled with cold ocean water.

CHANDLER WOBBLE

In News: Earth recorded its shortest day ever on June 29, 2022. Over the last few years, Earth has been spinning on its axis faster than usual, resulting in shorter days.

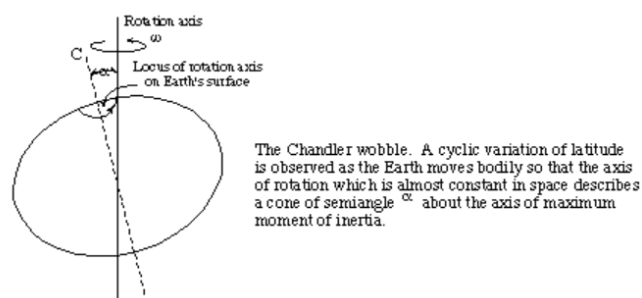


Figure 2.3.1

More on the Topic:

- Each year, the shortest days come in or around July. Movements in Earth's atmosphere and the Moon's orbit around our planet are some of the factors causing Earth to spin faster than usual.
- Processes taking place inside the Earth's core, mantle, and on the crust, along with oceans, tides, and climate may be responsible for the downward trend in the length of the shortest day.
- One of the other reason may be "The Chandler Wobble Phenomena". It is a small variation in the rotation of Earth on its axis, resulting in the irregular movement of Earth's geographical poles across the surface of the globe.

NON FUNGIBLE TOKEN - GAS FEE

In News: Creating a non-fungible-token (NFT) and selling it on any marketplace comes with a significant cost (also known as gas fee).

BusinessToday.In

HOW TO MINT NFTS FOR FREE

Non-Fungible Token or NFTs are digital tokens minted on the blockchain which can be owned only by one unique owner

- Rarible**
The gas fees is borne by buyer when NFT is bought
- Open Sea**
The gas fees is to be paid at the time of sale, seller can include it in selling price
- Mintable**
Gas fees is to be paid at the time of sale of NFT

Source: CoinMarketCap

More on the Topic:

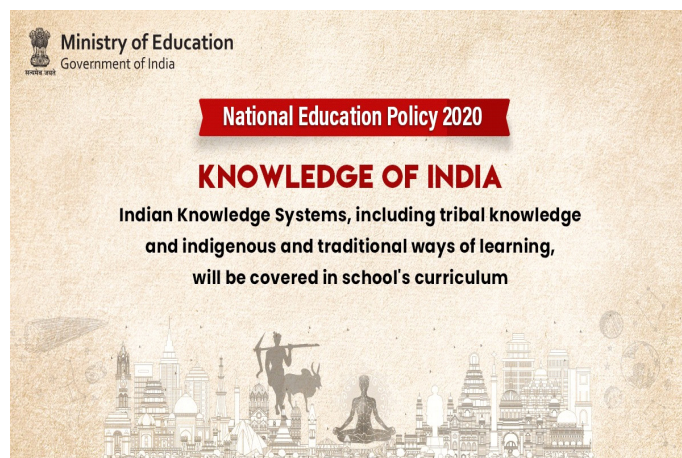
- **Crypto Gas Fees** is the transaction fees paid to miners on a block-chain network in order to get a user's transaction to be included in the block.
- Gas fees is not of fixed value but it keeps fluctuating with time.
- It can range starting \$10 to even \$1000 dollars depending on the blockchain and the platform you use.
- The system of crypto gas fee operates on a basic supply and demand model.
- If there is a higher demand for transactions on the blockchain, miners can opt to include transactions that pay more instead of those that pay less.
- **Lazy Minting and Polygon Blockchain method** are associated term with crypto block chain gas fee.

A Fungible Token:

- A non-fungible token is a financial security consisting of digital data stored in a blockchain, a form of distributed ledger.
- The ownership of an NFT is recorded in the blockchain, and can be transferred by the owner, allowing NFTs to be sold and traded.

INDIAN KNOWLEDGE SYSTEM

In News: "Gilli danda", "yubi lakpi", different forms of "kabbadi" and "kanche" are among 75 "Bharatiya games" the Centre has announced it will introduce in schools under the education ministry's Indian Knowledge Systems (IKS) initiative.



More on the Topic:

- The list of "Bharatiya games" compiled with the help of experts also includes "langdi" (hopscotch), javelin throw, "patang uddayan" (kite-flying), "seeta uddhar" (prisoner's base), "mardani khel" (a form of martial arts) and "vish amrit". "Santhal katti", a version of "gilli danda" played by Odisha's Santhal tribe, is also part of the list.
- "Yubi lakpi" is a game played in Manipur using a coconut. It has similarities to rugby.
- The idea is not just to simply promote Indian games in schools. The actual idea is to make sports more inclusive at the school level.

Indian Knowledge System:

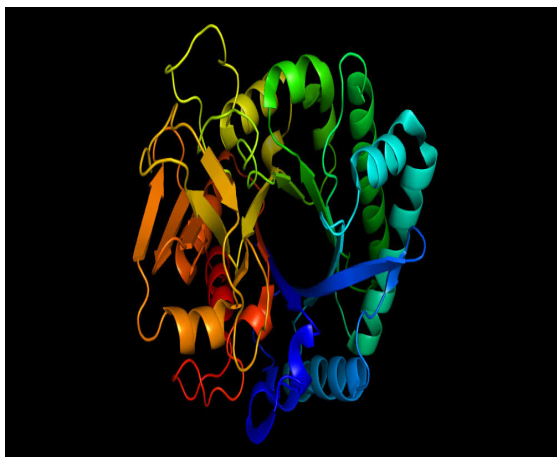
- Indian Knowledge System (IKS) is an innovative cell under Ministry of Education (MoE) at AICTE, New Delhi.
- IKS division was established in 2020.

Key Functions:

- Promote interdisciplinary research on all aspects of IKS,
- Preserve and disseminate IKS for further research and societal applications,
- Actively engage for spreading the rich heritage of our country and traditional knowledge in the field of Arts and literature, Agriculture, Basic Sciences, Engineering & Technology, Architecture, Management, Economics, etc.

ALPHA FOLD

In News: AlphaFold has released 200 million protein structures, revealing the 'protein universe'.



More on the Topic:

- AlphaFold is an artificial intelligence program developed by Alphabet's/Google's DeepMind which performs predictions of protein structure.
- The program is designed as a deep learning system.

How AlphaFold's Deep Learning Worked?

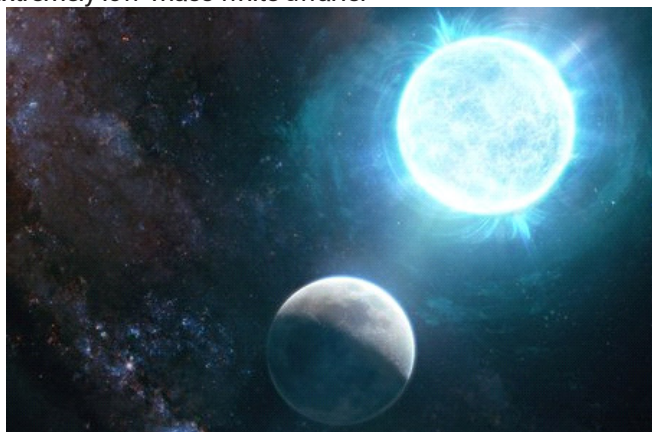
- The first step uses the available structures of 1,70,000 proteins in the Protein Data Bank (PDB) to train the computer model.
- Then, it uses the results of that training to learn the structural predictions of proteins not in the PDB.
- Then, it uses the high-accuracy predictions from the first step to retrain and relearn to gain higher accuracy of the earlier predictions.

Significance of AlphaFold:

- For molecules that can be made up of only a couple of dozen different amino acids, proteins are incredibly complex.
- Each fold, twist and position can change how the protein works, and so understanding these complicated 3D structures can tell us a lot about what the protein does.
- The scientists can take advantage of the AlphaFold database and learn how to use the structures to design better vaccines and drugs.

WHITE DWARFS

In News: Using data from the Large Sky Area Multi-Object Fiber Spectroscopic Telescope (LAMOST) and ESA's Gaia satellite, astronomers have detected 21 new high-probability extremely low-mass white dwarfs.

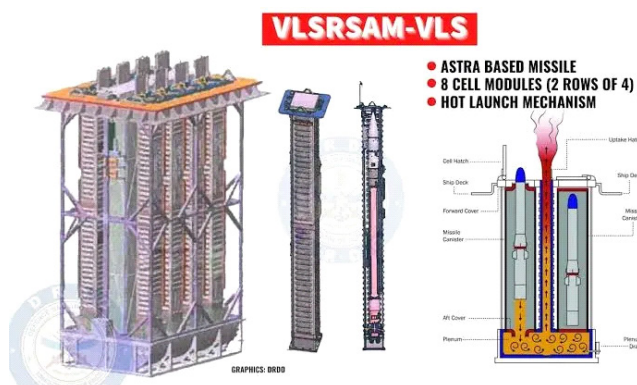


More on the Topic:

- Extremely low-mass (ELM) white dwarfs (WDs) are rare objects.
- White dwarfs are stars that have burned up all of the hydrogen they once used as nuclear fuel. Such stars have very high density.
- A typical white dwarf is half the size of our Sun and has a surface gravity 1,00,000 times that of Earth.
- Fusion in a star's core produces heat and outward pressure (they bloat up as enormous red giants), but this pressure is kept in balance by the inward push of gravity generated by a star's mass.
- When the hydrogen, used as fuel, vanishes and fusion slows, gravity causes the star to collapse in on itself into white dwarfs.

VERTICAL LAUNCH SHORT RANGE SURFACE-TO-AIR MISSILE (VL-SRSAM)

In News: The indigenously-developed ship-borne weapon system, Vertical Launch Short Range Surface to Air Missile (VL-SRSAM), was successfully flight tested by the Defence Research and Development Organisation (DRDO) and Indian Navy.



More on the Topic:

- VL-SRSAM, jointly designed by three facilities of the DRDO for Indian Naval warships, is meant for neutralising various aerial threats at close ranges including sea-skimming targets.
- Its design is based on the Astra missile, which is a Beyond Visual Range Air to Air missile.
- VL-SRSAM is a canisterised system, which means it is stored and operated from specially designed compartments. In the canister, the inside environment is controlled thus making its transport and storage easier and improving the shelf life of weapons.
- The missiles, equipped with indigenous Radio Frequency (RF) seeker, intercepted the target with high accuracy.

AMRIT GRANTS FOR BIOTECH STARTUPS

In News: Department of Biotechnology (DBT) and Biotechnology Industry Research Assistance Council (BIRAC) has announced 75 Amrit Grants for Biotech Initiatives.



More on the Topic:

- Under this initiative, ambitious research ideas, high-risk, milestone-driven collaborative research for knowledge-based discoveries with broad demonstrable application from both academia and industry will be considered for support.
- It also aims to propel India to a position of global leadership.
- The following themes would be supported. Health, agribiotech, climate change, synthetic biology and sustainable bioresource management.

INDIA'S FIRST SPACE SITUATIONAL AWARENESS OBSERVATORY

In News: Digantara, a space sector start-up of India, is going to set-up India's first commercial space situational awareness observatory in the Garhwal region of Uttarakhand, to track objects as small as 10 cm in size orbiting the earth.



More on the Topic:

- The space situational awareness (SSA) observatory will assist in tracking any activity in space including that of space debris and military satellites hovering over the region.
- The observatory will help to monitor events occurring in deep space, especially in the geostationary, medium-Earth, and high-Earth orbits. The high-quality observations made will be complemented by observations of its partner ground-based sensor network.
- With this data, it would be able to reduce the potential for collisions between satellites and other spacecraft by making more accurate predictions of their location, speed, and trajectory.
- Ahead of the war in Ukraine, several Russian satellites were seen hovering over the region. Thus, the observatory

will give India indigenous capabilities to monitor space activity over the subcontinent providing a strategic advantage.

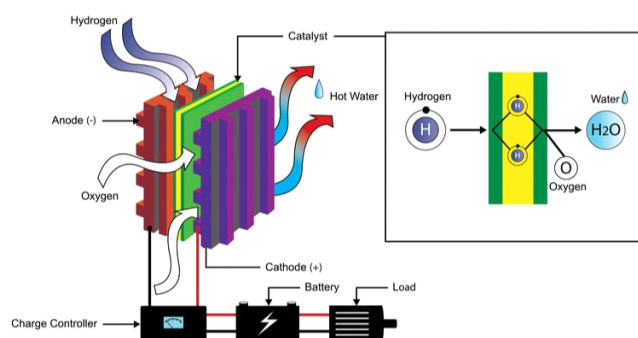
Main Areas Covered by SSA:

- Space Surveillance and Tracking (SST) of man-made objects.
- Space Weather (SWE) monitoring and forecast.
- Near-Earth Objects (NEO) monitoring (only natural space objects)

HYDROGEN FUEL CELL BUS

In News: Indigenously developed Hydrogen Fuel Cell Bus was unveiled recently at Pune.

Hydrogen Fuel Cells



More on the Topic:

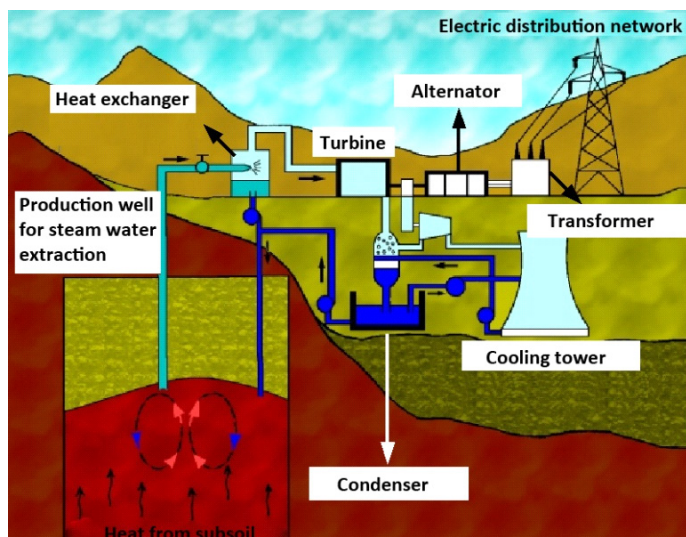
- The fuel cell utilizes Hydrogen and Air to generate electricity to power the bus.
- Hydrogen Fuel Cell Bus is an excellent means to eliminate the on-road emissions from this sector. Since, 12-14% CO₂ emissions and particulate emissions come from diesel powered heavy commercial vehicles and these are decentralised emissions and hence difficult to capture.
- The only effluent from the bus is water, therefore making it possibly the most environmentally friendly mode of transportation.
- The operational costs in Rupee per kilometre for fuel cell trucks and buses are lower than diesel powered vehicles, the high efficiency of fuel cell vehicles and the high energy density of hydrogen ensures the same.

About Hydrogen Fuel Cell:

- A hydrogen fuel cell uses the chemical energy of hydrogen to produce electricity. It is a clean form of energy with electricity, heat and water being the only products and by products.
- Hydrogen fuel cells generate electricity using a chemical reaction. Each fuel cell has two electrodes; a negative anode and a positive cathode.
- The reaction to produce the electricity happens at these electrodes, with an electrolyte carrying electrically charged particles between them and a catalyst to speed up the reactions.
- Hydrogen acts as the basic fuel in a hydrogen fuel cell, but the cell also needs oxygen to work.

LADAKH GEOTHERMAL POWER PLANT

In News: ONGC has started drilling its first well at Puga (Ladakh) to generate electricity using geothermal power.



More on the Topic:

- The project, being developed by the Oil and Natural Gas Company (ONGC), is potentially the first geothermal power plant in India.
- For the first phase of the project, the plan is to drill two wells at approximately 1000 meters depth to power a small-scale 1-MW pilot plant.
- Geothermal energy is heat within the earth.

Geothermal Energy:

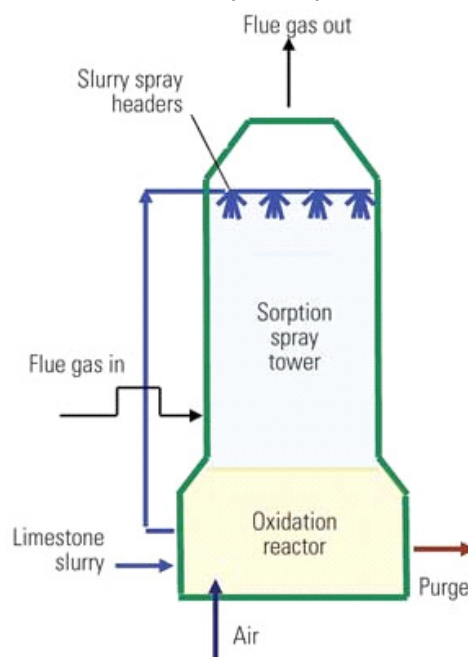
- Geothermal energy is the thermal energy in the Earth's crust which originates from the formation of the planet and from radioactive decay of materials.
- The high temperature and pressure in Earth's interior cause some rock to melt and solid mantle to behave plastically.
- To produce the geothermally generated electricity, wells, 1.6 kilometres deep or more holes are drilled into underground reservoirs.
- These wells tap steam and hot water to drive the turbines. The turbines are in turn linked to electricity generators.

Potential Geothermal Reservoirs in India:

- Puga- Ladakh
- Tatapani- Chhattisgarh
- Godavari
- Manikaran- Himachal Pradesh
- Bakreshwar- West Bengal
- Tuwa- Gujarat
- Unai- Maharashtra
- Jalgaon- Maharashtra
- Rajgor and Munger- Bihar

FLUE GAS DESULFURISATION

In News: As part of its commitment towards Net Zero by 2070, NTPC Ltd, India's largest integrated power company has captured its first CO₂ on 15th August 2022 from flue gas stream of coal based power plant at Vindhyachal.



More on the Topic:

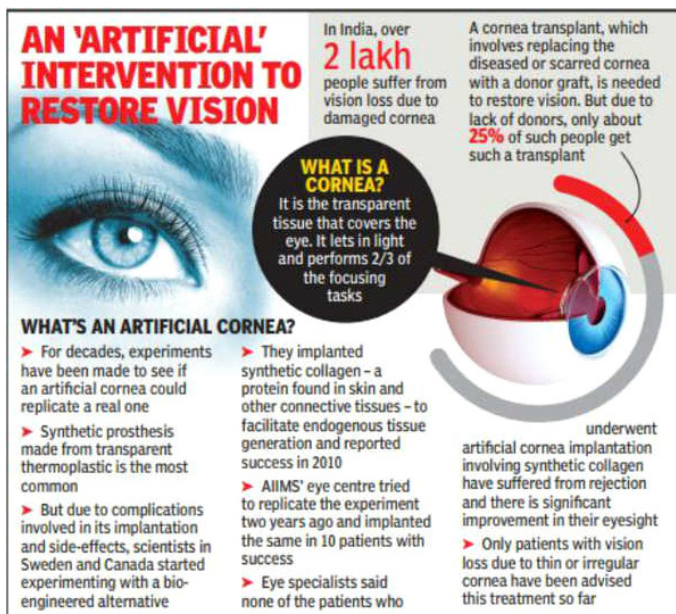
- NTPC has become India's first energy company to declare its energy compact goals as part of the UN High-level Dialogue on Energy (HLDE).
- Besides power generation, NTPC has diversified into producing energy through cleaner and greener sources, such as hydro, wind and solar. It also provides green hydrogen solutions.
- The power major has also forayed into a variety of business areas, including fuel cells, e-mobility and waste-to-energy.

Flue gas desulfurization (FGD):

- Flue gas desulfurization (FGD) is a set of technologies used to remove sulfur dioxide (SO₂) from flue gases.
- Flue gas (sometimes called exhaust gas or stack gas) is the gas that emanates from combustion plants.
- It contains the reaction products of fuel and combustion air and residual substances such as particulate matter (dust), sulphur oxides, nitrogen oxides, and carbon monoxide.
- The removal of sulphur dioxide is critical to establishing a safe and clean environment where toxic emissions are kept to a safe low.
- Fossil fuels such as coal and oil often contain high amounts of sulphur.

BIO ENGINEERED CORNEA

In News: A new study has found out that Corneas bioengineered from pig collagen can restore sight.



More on the Topic:

- Gene modulation refers to the process of temporarily altering gene expression levels without making heritable changes to the underlying cellular DNA.
- The most common gene modulation techniques involve silencing gene function (knockdown) via RNAi or CRISPRi techniques, or increasing expression (activation/overexpression) via cDNA, ORF or CRISPRa techniques.

BIOSENTINEL

In News: The Biosentinel Mission will be a part of the secondary payloads of Artemis I mission.

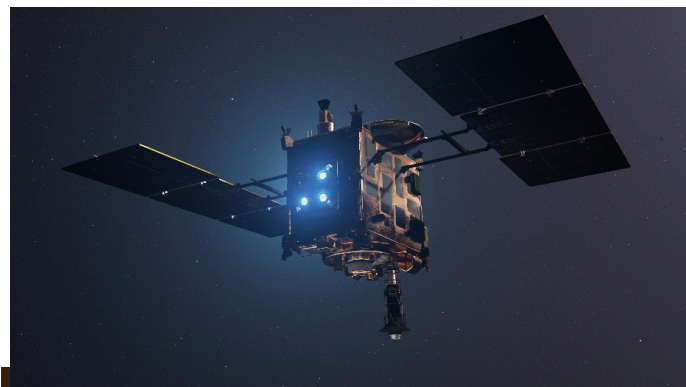


More on the Topic:

- The BioSentinel will carry microorganisms in the form of yeast.
- Its main job is to monitor the vital signs of yeast so that they can observe the effect of deep space radiation on them.
- It is important because yeast cells have similar biological mechanisms to human cells. Thus, needless to say, this experiment will help NASA understand the risks of space radiation to humans.
- The space agency can then accordingly plan crewed exploration missions to the Moon and beyond.

HAYABUSA-2 PROBE

In News: The Hayabusa-2 probe brought 5.4 grams of rocks and dust from the asteroid Ryugu to Earth in December 2020. New study related to the materials suggest that water and organic materials might have been brought to our planet from the outer edges of the solar system.



More on the Topic:

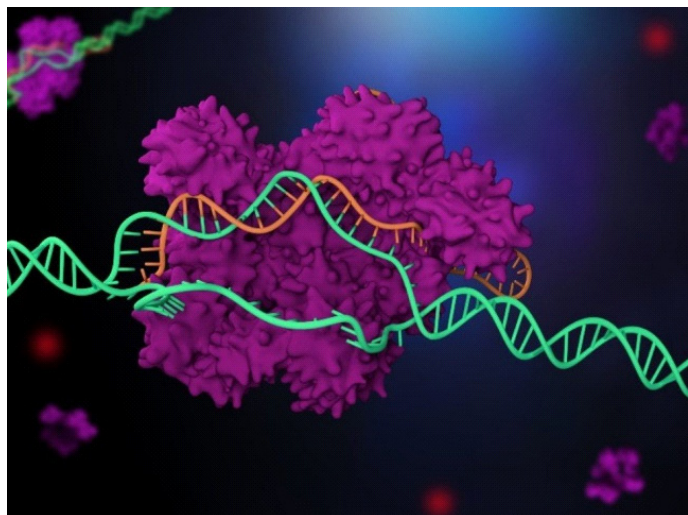
- For the first time, researchers in Sweden have been able to create a successful alternative bioengineered cornea implants made of collagen derived from pig skin. The implant was used to successfully restore the vision of 20 people in India and Iran.
- The results show that it is possible to develop a biomaterial that meets all the criteria for being used as human implants, which can be mass-produced and stored up to two years and thereby reach even more people with vision problems.

Bioengineering:

- Biological engineering, also known as bioengineering, is the application of biological principles and engineering tools to create usable, tangible, and economically viable products.
- Bioengineering is the application of engineering knowledge to the fields of medicine and biology.

GENE MODULATION

In News: Gene modulation was used to enhance productivity of a chinese rice variety (containing a gene OsDREB1C) by 40%.



More on the Topic:

- The Hayabusa-2 mission was launched in December 2014 when the spacecraft was sent on a six-year voyage to study the asteroid Ryugu.
- The spacecraft arrived at the asteroid in mid-2018 after which it deployed two rovers and a small lander onto the surface.
- In 2019, the spacecraft fired an impactor into the asteroid's surface to create an artificial crater with a diameter of a little more than 10 metres, which allowed it to collect the samples.
- In December 2020, Hayabusa-2 delivered a small capsule that contained the rock and dust samples when it was 220,000 km from the Earth's atmosphere, which safely landed in the South Australian outback.
- Hayabusa2's predecessor, the Hayabusa mission, brought back samples from the asteroid Itokawa in 2010.

What is an asteroid?

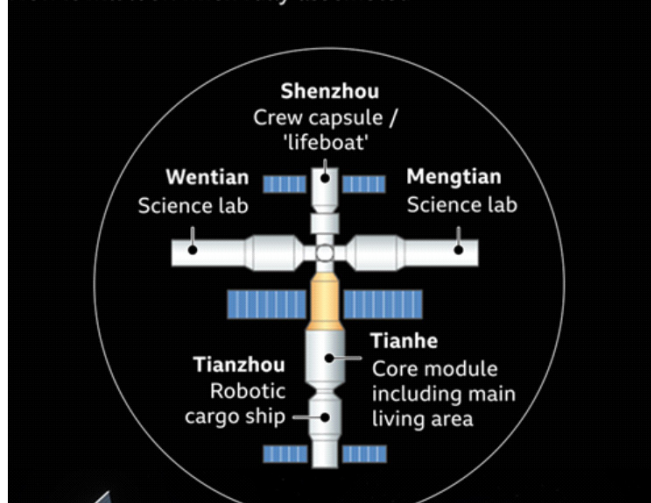
- Asteroids are rocky objects that orbit the Sun, much smaller than planets. They are also called minor planets.
- According to NASA asteroids are the remnants from the formation of the solar system over 4.6 billion years ago.
- Asteroids are divided into three classes. First are those found in the main asteroid belt between Mars and Jupiter.
- The second group is that of trojans, which are asteroids that share an orbit with a larger planet.
- The third classification is Near-Earth Asteroids (NEA), which have orbits that pass close to the Earth.

SPECTROGRAPHIC INVESTIGATION OF NEBULAR GAS (SING)

In News: India-China dispute may affect space project Spectrographic Investigation of Nebular Gas (SING).

China's space station

How it will look when fully assembled



More on the Topic:

- The project includes Indian astrophysicists ambitious project to install an Indian-made spectroscope aboard the developing Chinese space station Tiangong.

- Indian astrophysicists have been involved in an ambitious project to install an Indian-made spectroscope aboard the developing Chinese space station Tiangong.
- India and China have been collaborators in the past on research projects such as the Giant Metre Wave Radio Telescope, a Pune-based observatory that's employed by astrophysicists across the world to study radiation at metre-scale resolutions to observe and analyse stars and galaxies.

Tiangong Space Station:

- The space station will operate in low-Earth orbit at an altitude of 340-450 km above Earth's surface.
- Tiangong, which means "heavenly palace", is expected to become fully operational by the end of the year and is set to be operational for at least 10-15 years.
- The low orbit space station would be providing round the clock bird's-eye view for its astronauts on the rest of the world.
- It will help China's aim to become a major space power by 2030.
- It replicates the International Space Station (ISS), from which China was excluded.

ROSHINI

In News: Union Minister Dr Jitendra Singh launched India's first Saline Water Lantern which uses the sea water to power itself.

More on the Topic:

- It uses seawater as the electrolyte between specially designed electrodes to power the LED lamps.
- It is noteworthy that the technology can also be used in hinterlands, where sea water is not available, as any saline water or normal water mixed with the common salt can be used to power the Roshni lantern, which makes it cost-effective and feasible to operate.

TRADITIONAL KNOWLEDGE DIGITAL LIBRARY (TKDL)

In News: The Cabinet has approved the "Widening access of the Traditional Knowledge Digital Library (TKDL) database to users, besides patent offices".



More on the Topic:

- The Traditional Knowledge Digital Library (TKDL) is a prior art database of Indian traditional knowledge established in 2001, jointly by the Council of Scientific and Industrial Research (CSIR) and Department of Indian Systems of Medicine and Homeopathy (ISM&H, now Ministry of AYUSH).
- The TKDL is a first of its kind globally and has been serving as an exemplary model to other nations.
- The TKDL currently contains information from existing

literature related to ISM such as Ayurveda, Unani, Siddha, Sowa Rigpa and Yoga.

- The information is documented in a digitized format in five international languages which are English, German, French, Japanese and Spanish.
- TKDL provides information in languages and format understandable by patent examiners at Patent Offices worldwide, so as to prevent the erroneous grant of patents.
- Until now, access to the complete TKDL database is restricted to 14 Patent Offices worldwide for the purposes of search and examination.

TOMATO FEVER

In News: Tomato fever is spreading among children younger than five.



More on the Topic:

- The 'tomato flu' is caused by **Coxsackie virus A 16**.
- It belongs to Enterovirus family. Hand, foot, and mouth disease (HFMD) is a frequent febrile rash illness of childhood caused by enteroviruses (EV).
- The illness is rare in adults as they usually have immune systems strong enough to defend them from the virus.
- Tomato flu is **very contagious** and children are at an **increased risk of exposure** as viral infections are common in this age group and the spread is likely to be through close contact.
- The Tomato Flu or Tomato Fever is a self-limiting one and there are no specific drugs for it.

TUBERCULOSIS

In News: WHO has released updated guidance on national strategic planning for tuberculosis.



More on the Topic:

- The guidance encourages the use of a **people-centric focus** in the development of national TB strategic plan (NSP).
- It highlights the importance of government stewardship and ownership, promotes alignment with national health strategy and other health programmes, emphasizes multi stakeholder and multi-sectoral engagement as one of the key steps for multi sectoral accountability for TB.

Tuberculosis:

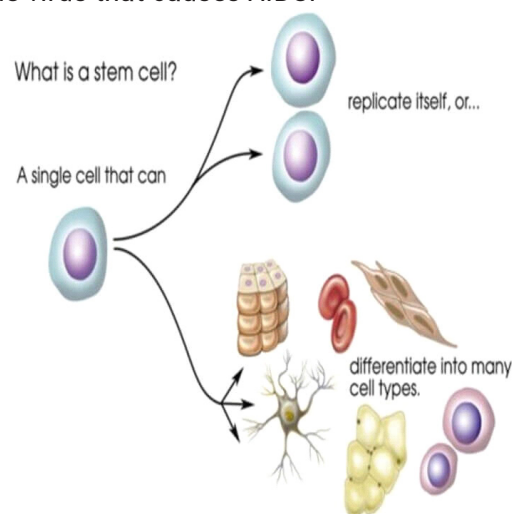
- Tuberculosis (TB) is caused by a **bacterium called Mycobacterium tuberculosis**. The bacteria usually attack the lungs, but TB bacteria can attack any part of the body such as the kidney, spine, and brain.
- TB is a **treatable and curable disease**.
- TB is spread from person to person through the air. When people with lung TB cough, sneeze or spit, they propel the TB germs into the air.

Initiatives by India:

- According to Global Tb Report 2021, India has reduced incidence of TB from 217/lakh population in 2015 to 188/lakh population in 2020 (13% decline)
- **Eliminating TB by 2025:** India is committed to eliminating tuberculosis by 2025, five years ahead of the global target of 2030.
- **National Tuberculosis Elimination Programme:** To align with the ambitious goal, the programme has been renamed from the Revised National Tuberculosis Control Programme (RNTCP) to National Tuberculosis Elimination Programme (NTEP).

STEM CELL TRANSPLANT

In News: After receiving a stem cell transplant, a 66-year-old man may be the fifth person to be cured of HIV, the virus that causes AIDS.



More on the Topic:

- A bone marrow transplant is also called a stem cell transplant or, more specifically, a hematopoietic stem cell transplant.
- SCT, also called bone marrow transplant, is a **procedure** in which a patient receives healthy stem cells to replace

damaged stem cells.

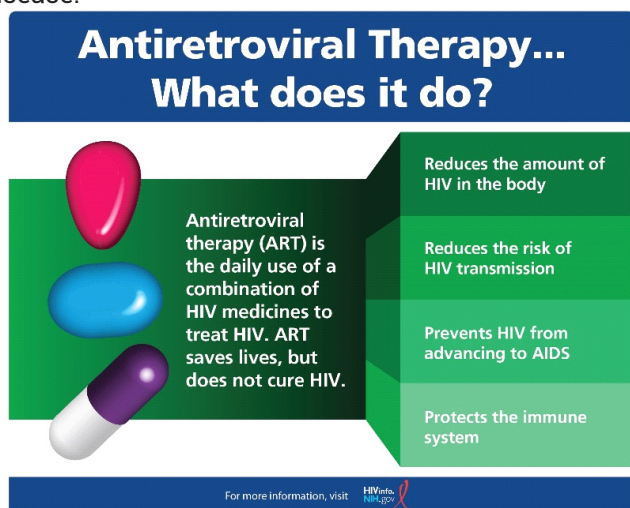
- The replacement cells can either come from own body (Autologous transplantation) or from a donor (Allogeneic transplantation).

Stem Cells:

- A stem cell is a cell with the unique ability to develop into specialized cell types in the body.
- All stem cells regardless of their source have three general properties:
- They are capable of dividing and renewing themselves for long periods
- They are unspecialized
- They can give rise to specialized cell types

ANTIRETROVIRAL (ARV) THERAPY

In News: AIDS patients at Delhi protested over the shortage of antiretroviral drugs that are considered crucial to curb the disease.



More on the Topic:

- While there is no cure for HIV, antiretroviral (ARV) drugs taken on time and regularly, can help control it and is considered as one of the few ways to suppress the virus.
- If left untreated, HIV can progress into acquired immune deficiency syndrome (AIDS), a disease that damages the immune system.
- Hence, ARV drugs are critical to patient care; they can indeed be life-saving, or at least life-preserving, for people living with HIV, making access to drugs a fundamental right.
- ART aims to reduce the replication of HIV and bring the viral load to undetectable levels. It reduces the mortality and illness resulting from HIV infection.
- Dolutegravir is used by adults, adolescents and children (aged more than 6 years with body weight more than 20 kg) and Nevirapine syrup is given to infants.

INDIAN SOCIETY/SOCIAL ISSUES/SOCIAL JUSTICE

SMILE-75 INITIATIVE

In News: Ministry of Social Justice & Empowerment, Government of India, has identified 75 Municipal Corporations to implement comprehensive rehabilitation of persons engaged in the act of begging under "SMILE: Support for Marginalised Individuals for Livelihood and Enterprise" named as "SMILE-75 Initiative".

More on the Topic:

- Under the SMILE-75 initiative, seventy five (75) Municipal Corporations in collaboration with NGOs and other stakeholders will cover several comprehensive welfare measures for persons who are engaged in the act of begging with focus extensively on rehabilitation, provision of medical facilities, counselling, awareness, education, skill development, economic linkages and convergence with other Government welfare programmes etc.
- Through this project, the Ministry envisions to develop a support mechanism for holistic rehabilitation of those engaged in the act of begging and build an India where no person is forced to beg in order to survive and fulfill their basic needs.
- The objective of SMILE- 75 is to make our cities/town and municipal areas begging-free and make a strategy for comprehensive rehabilitation of the persons engaged in the act of begging through the coordinated action of various stakeholders.
- The Ministry of Social Justice & Empowerment understands the important role of Local Urban Bodies, Civil Society Organisations/Non-Government Organisations to address this persisting social issue with concerted efforts.

REPLACEMENT LEVEL FERTILITY

In News: Union minister of Health has informed that India has achieved replacement level fertility, with as many as 31 States/Union Territories reaching a Total Fertility Rate of 2.1 or less.

More on the Topic:

- Replacement level fertility is the level of fertility at which a population exactly replaces itself from one generation to the next.
- It can be taken as requiring an average of 2.1 children per woman.
- According to World population prospects 2022, India will overtake China as most populous country in 2023.

Reasons for India achieving replacement level Fertility:

- The latest data has shown significant progress on several indicators related to fertility, family planning, age at marriage and women's empowerment – all of which have contributed to the decrease in TFR.

- From NFHS-4 to NHFS-5, decline in teenage childbearing was minimal— 7.9% in 2015-16 to 6.8% in 2019-21.
- There has been a significant increase in current use of any modern contraceptive method.
- Contraceptive Prevalence Rate has increased substantially from 54% to 67% at the all-India level.
- Introduction of new reversible spacing (gaps between children) methods, wage compensation systems to undergo sterilisation, and the promotion of small family norms also worked well over the years.
- Government of India has for long been working on population control. In fact, India was the first country to launch a national-level family planning programme and the encouraging results that we see now are due to sustained, concerted efforts put together by the Centre, and the state governments.

Government Schemes:

- The Government has launched Mission Parivar Vikas in 2017 for substantially increasing access to contraceptives and family planning services in 146 high fertility districts with TFR of 3 and above in seven high focus states.
- National Family Planning Indemnity Scheme (NFPIS) was launched in the year 2005. Under this scheme client are insured in the eventualities of death, complication and failure following sterilization.
- Under Compensation scheme for Sterilization Acceptors the Ministry of Health and Family Welfare provides compensation for loss of wages to the beneficiary and also to the service provider (& team) for conducting sterilizations from the year 2014.

MOONLIGHTING

In News: Companies have opposed the practice, saying that employees doing multiple jobs can impact their productivity.

More on the Topic:

- Moonlighting means taking up a second job or multiple other work assignments apart from one's full-time job.
- Moonlighting has become a topic of debate in the IT industry as working from home became the normal norm during the Covid-19 pandemic, which is believed to have led to a rise in dual employment.

Does Any Law Prevent Dual Employment?

- There is no law that prevents dual employment, employees have the right to disconnect from their primary job after the committed work hours and engage in other projects either for additional income or for developing skills, or to pursue other interests outside their job.
- Moonlighting is not defined under any statute in Indian employment laws. Moonlighting is also not necessarily dual employment, which is a formal employer-employee relationship, complete with legal obligations like minimum wage, provident fund, gratuity etc. It could also be side hustles or freelancing which can be with or without the knowledge of the primary employer.

REPORTS AND INDICES

AIR QUALITY AND HEALTH IN CITIES REPORT

In News: The report, Air Quality and Health in Cities was released by U.S.-based Health Effects Institute.



More on the Topic:

About NSIL:

- The report analysed pollution and global health effects for more than 7,000 cities around the world and focusing on two of the most harmful pollutants - fine particulate matter (PM2.5) and nitrogen dioxide (NO2).
- While exposures to PM2.5 pollution tend to be higher in cities located in low- and middle-income countries, exposure to NO2 is high across cities in high-income as well as low- and middle-income countries.

India Specific Findings:

- Delhi and Kolkata were ranked first and second in the list of top 10 most polluted cities when PM2.5 levels were compared, with Delhi and Kolkata reporting an average annual exposure of (relative to population) of 110 ug/m3 and 84 ug/m3 respectively. ug/m3 refers to microgram per cubic metre.
- However no Indian city appeared in the list of top 10 – or even top 20 – polluted cities when NO2 levels were compared. This list saw Shanghai at the top with an average annual exposure of 41 ug/m3.
- Average NO2 levels for Delhi, Kolkata and Mumbai, according to the report, ranged from 20-30 ug/m3.
- NO2 comes mainly from the burning of fuels in older vehicles, power plants, industrial facilities and residential cooking and heating.
- As city residents tend to live closer to busy roads with dense traffic, they are often exposed to higher NO2 pollution than residents of rural areas.

FINANCIAL INCLUSION INDEX

In News: RBI has published its annual financial inclusion index recently.



More on the Topic:

- India's financial inclusion index (FI-Index) for the year ended March 31, 2022 improved to 56.4 from 53.9 in the previous year, with growth seen across all its sub-indices.
- The index comprises of three parameters including access, usage and quality.
- The FI-Index is responsive to ease of access, availability and usage of services and quality of services, consisting of 97 indicators.
- Index has been constructed without any base year and reflects cumulative efforts of all stakeholders over the years towards financial inclusion.
- It captures the extent of financial inclusion across the country by including details of banking, investments, insurance, postal as well as the pension sector.

RBI-DIGITAL PAYMENTS INDEX

In News: RBI has released latest RBI Digital Payment Index. Recent Index showed significant growth (between March 2021- March 2022) indicating rapid adoption and deepening of digital payments across the country.

More on the Topic:

- The digital payment index intends to measure the adoption of online transactions.
- The index is published on a semi-annual basis from March 2021 onwards.
- The RBI-DPI comprises 5 broad parameters that enable the measurement of the deepening and penetration of digital payments in the country over different periods.
- These parameters are:
- Payment Enablers
- Payment Infrastructure – Demand-side factors
- Payment Infrastructure – Supply-side factors
- Payment Performance
- Consumer Centricity

INTERNAL SECURITY

INDO-NAGA CEASEFIRE AGREEMENT

In News: Indo Naga Cease fire agreement turned 25 years. The ceasefire agreement between the Government of India and the National Socialist Council of Nagalim (Isak-Muivah) came into effect on August 1, 1997.

THE NAGA STRUGGLE

1918: Naga Club formed. Seeds of Naga nationalism sown	Agreement interpreted as offer for sovereignty by NNC
1946: Naga National Council (NNC) born under the leadership of A.Z. Phizo	1955: NNC begins armed insurgency. Delhi imposes Assam Disturbed Areas' Act
August 14, 1947: NNC declares independence	1958: AFSPA comes into force
June 1947: Haidari	1963: Nagaland born
1964: Nagaland Peace Mission created, ceasefire signed	
1975: Shillong Accord signed, calls for unconditional ceasefire, termed a 'complete sellout'	
1980: National Socialist Council of Nagalim (NSCN) formed	
1988: NSCN splits into NSCN (K) and NSCN (I-M)	
1997: NSCN (I-M) signs ceasefire	
2001: NSCN (K) signs ceasefire	
March 2015: NSCN (K) breaks ceasefire	
August 2015: Naga peace accord signed	

More on the Topic:

- The British annexed Assam in 1826, and in 1881, the Naga Hills too became part of British India.
- The first sign of Naga resistance was seen in the formation of the Naga Club in 1918, which told the Simon Commission in 1929 "to leave us alone to determine for ourselves as in ancient times".
- In 1946 came the Naga National Council (NNC), which declared Nagaland an independent state on August 14, 1947.
- The NNC resolved to establish a "sovereign Naga state" and conducted a "referendum" in 1951, in which "99 per cent" supported an "independent" Nagaland.
- On March 22, 1952, the Naga Federal Government (NFG) and the Naga Federal Army (NFA) were formed.
- The Government of India sent in the Army to crush the insurgency and, in 1958, enacted the Armed Forces (Special Powers) Act.

The Cease Fire Agreement:

- The NSCN (IM) entered into a ceasefire agreement with the Centre in 1997 and the two have been holding talks

since then, while a conglomerate of seven different Naga national political groups (NNPGs) also got into separate talks with the Centre since 2017.

- The Centre signed a “framework agreement” with NSCN (IM) in 2015, and an “agreed position” with the NNPGs in 2017.
- However, the NSCN (IM)’s demand for a separate Naga flag and constitution has been a delaying factor in signing a final deal on the protracted Naga political issue.

Some demands that need discussion are:

- Bicameral Assembly with at least 40 nominated members representing different tribes;
- Absorption of cadres as local armed forces or in the Indian paramilitary;
- Setting up of autonomous councils in Naga-dominated areas of neighbouring states;
- Use of the Naga flag for at least customary events.

Way Ahead:

- **More local autonomy** through mechanisms such as conferment of Statehood, the Sixth Schedule, Special Provisions under PART XXI of the Constitution.
- Negotiations with insurgent outfits.
- Development activities including special economic packages.

OVERGROUND WORKERS

In News: Nearly 250 ‘overground workers’ arrested in Jammu & Kashmir under the Public Safety Act and Unlawful Activities (Prevention) Act. Most of them have been lodged in prisons outside the Union Territory.

More on the Topic:

- An OGW helps militants/terrorists in movement, ammunition supplies and accommodation.
- Over ground workers (OGWs) are people who help militants, or terrorists, with logistical support, cash, shelter, and other infrastructure with which armed groups and insurgency movements such as Hizbul Mujaheddin and Jaish-e-Muhammad in Jammu and Kashmir can operate.
- OGWs play a vital role in militant attacks, providing real-time information and support to the tactical elements.
- Over ground workers have diversified into other roles such as stone-pelting, mob-rioting, ideological support, radicalisation, and recruitment of militants.

Public Safety Act and Unlawful Activities (Prevention) Act:

- Passed in 1967, the law aims at effective prevention of unlawful activities associations in India.
- The Act assigns absolute power to the central government, by way of which if the Centre deems an activity as unlawful then it may, by way of an Official Gazette, declare it so.
- It has death penalty and life imprisonment as highest punishments.
- Under UAPA, both Indian and foreign nationals can be charged.
- It will be applicable to the offenders in the same manner, even if crime is committed on a foreign land, outside India.

ANCIENT, MODERN INDIA AND ART & CULTURE

PARYUSHAN PARV (FESTIVAL)

In News: In the month of August or September Paryushan Parv (festival) is celebrated by Jain monks.



More on the Topic:

- It is celebrated in the middle of the rainy season, when the Jain monks and nuns cease travelling and stay with a community and are available to them for instruction and guidance.
- During Paryushan Jains increase their level of spiritual intensity often using fasting and prayer/meditation to help.
- The five main vows are emphasized during this time- Ahisā (Non-violence), Satya (Truth), Asteya (Non-stealing), Brahmacharya (Chastity), Aparigraha (Non-possession).
- It concludes with a time of (Pratikraman) confession and forgiveness for the transgressions of the previous year.

CHOLA ERA IDOLS

In News: The Tamil Nadu Idol Wing CID has initiated steps to retrieve six Chola-era bronze idols, stolen from the Nareeswara Sivan temple Tamil Nadu back in the 1960s, and currently kept at various museums in the United States.



More on the Topic:

- Antiquities and Art Treasures Act, 1972 makes the export of such items without licence making it a criminal offence.
- The theft idols include Panchaloha idols of Tripuranthakam, Thirupurasundari, Nataraja, Dakshinamurthy Veenadhara, and Saint Sundarar with his wife Paravai Natchiyaar.
- Treaty on Mutual Legal Assistance in Criminal Matters between India and U.S allows for assistance in crimes.

Nareeswara Sivan Temple:

- Nareeswara Sivan Temple is located at Veeracholapuram in Kallakurichi district, Tamil Nadu.
- It was constructed by Rajendra Chola I of Chola Dynasty.
- Early Chola temples were influenced by Pallava architecture while later temples were influenced by Chalukya architecture with features like Vimana, Garbhagriha, Mandap, Gopuram etc.

Rajendra Chola I:

- Rajendra Chola I often referred to as Gangaikonda Chola was a Chola Emperor who reigned between 1014 & 1044 CE.
- He has Extended Cholas influence from banks of Ganges to Southeast Asian countries.

GI TAGGED MITHILA MAKHANA

In News: Bihar's Mithila Makhana has been awarded the GI Tag. Mithila Makhana or Makhan is a special variety of aquatic fox nut cultivated in Mithila region of Bihar and Nepal



More on the Topic:

- A geographical indication or GI is a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin.
- Geographical Indications are part of the intellectual property rights that come under the Paris Convention for the Protection of Industrial Property.
- In India, Geographical Indications registration is administered by the Geographical Indications of Goods (Registration and Protection) Act of 1999.
- Geographical indications are typically used for agricultural products, foodstuffs, wine and spirit drinks, handicrafts, and industrial products.
- This tag is valid for a period of 10 years following which it can be renewed.
- GI tags are covered under World Trade Organization.

PLACES AND PERSONALITIES IN NEWS

PINGALI VENKAYYA

In News: The government of India released a special commemorative postage stamp to mark the 146th birth anniversary of Pingali Venkayya.



More on the Topic:

- Pingali Venkayya was born near Machilipatnam (Andhra Pradesh) on August 2, 1876. Pingali had designed many models of the national flag.
- He was a freedom fighter and a Gandhian who went on to become synonymous with the spirit of free and independent India.
- In 1916, he published a booklet titled 'A National Flag for India'. It not only surveyed the flags of other nations but also offered 30-odd designs of what could develop into the Indian flag.
- Later, when he met Gandhi in Vijayawada, he showed him the booklet. Gandhi was pleased to see the design and acknowledged the need for a national flag, so he asked Venkayya to design a fresh one at the National Congress Meeting, held in 1921.
- Initially, Pingali Venkayya-designed the flag featured saffron and green colours only; however, later, it was redesigned, and the third colour, white, was introduced along with a spinning wheel (Dharma Chakra) at the centre.
- Finally, in 1931, the Indian National Congress officially adopted this flag as our nation's Flag.

PANDURANG KHANKHOJE

In News: The Lok Sabha Speaker Om Birla will travel to Mexico to unveil the statue of freedom fighter and agriculturalist Pandurang Khankhoje.



More on the Topic:

- The Maharashtra-born revolutionary has close ties to Mexico as he sought refuge there due to his association with the Ghadar Party.
- Khankhoje's earliest nationalist work abroad dates back to the time around 1908 when he, along with Pandit Kanshi Ram founded the **Indian Independence League in Portland, USA**.
- His works also brought him close to other Indian nationalists in United States at the time, including Tarak Nath Das.
- In the years preceding World War I, Khankhoje was one of the **founding members of the Pacific coast Hindustan association**, and subsequently founded the Ghadar Party. He was at the time one of the most influential members of the party.
- He met Lala Har Dayal in 1911. He also enrolled at one point in a West Coast military academy.
- As he was facing possible deportation from Europe and could not go to India, he sought shelter in Mexico.
- Soon, in part due to his prior friendship with Mexican revolutionaries, he was appointed a professor at the National School of Agriculture in Chapingo, near Mexico City.
- He researched corn, wheat, pulses and rubber, developing frost and drought-resistant varieties, and was part of efforts to bring in the Green Revolution in Mexico.
- Later on, the American agronomist Dr Norman Borlaug, called the Father of the Green Revolution in India, brought the Mexican wheat variety to Punjab.
- Khankhoje was revered as an agricultural scientist in Mexico.

ANNA MANI

In News: Google Doodle has celebrated Indian physicist and meteorologist Anna Mani on her birthday anniversary.

More on the Topic:

- Dr Anna Modayil Mani is referred to as "The Weather Woman of India." She led the efforts, primarily through instrumentation, to study solar and wind energy, and atmospheric ozone.
- After graduating from physics and chemistry, she worked under Prof. C V Raman, researching the optical properties of ruby and diamond.

- In 1948 she joined the Meteorological department in Pune.
- In 1960, Anna Mani started her work on measuring atmospheric ozone, before the world even understood the ozone layer's functions.
- Anna Mani designed an instrument - ozonesonde - to measure atmospheric ozone. She also set up a meteorological observatory at the Thumba rocket launching facility.
- She retired as Deputy Director-General of the IMD in 1976.

THE ZAPORIZHZHIA NUCLEAR PLANT

In News: The risk of disaster at Europe's largest nuclear plant is "increasing every day as Ukraine and Russia exchanged blame for fresh shelling around the facility.



More on the Topic:

- The Zaporizhzhia plant in southeastern Ukraine has been occupied by Russian forces since March, and Kiev has accused Moscow of basing hundreds of soldiers and storing arms there.
- The facility has come under fire repeatedly in the past week, raising the spectre of a nuclear catastrophe.
- Amid demands to turn the area into a demilitarized zone, the G7 group of nations have called on Russia to immediately exit the plant and hand its control back to Ukraine.

NAGORNO-KARABAKH

In News: Armenia and Azerbaijan had blamed each other for the recent clashes that violated a ceasefire over the Nagorno-Karabakh region.



More on the Topic:

- The Nagorno-Karabakh conflict is an ethnic and territorial conflict between Armenia and Azerbaijan over the disputed region of Nagorno-Karabakh, inhabited mostly by ethnic Armenians, but located within the boundaries of Azerbaijan.
- While the area remains in Azerbaijan, it is today governed by separatist Armenians who have declared it a republic called the "Nagorno-Karabakh Autonomous Oblast"

ITALY'S LAKE GARDA

In News: Water levels on Italy's Lake Garda is at 15-year low.



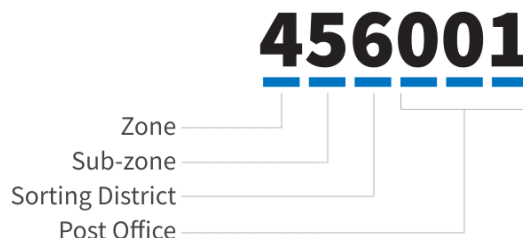
More on the Topic:

- Italy's largest lake, a popular tourist destination, has been severely affected by hot temperatures and a lack of significant rainfall for months.
- Parts of northern Italy are experiencing their worst drought in 70 years.
- The northern end belonged to Austria until 1919.
- Well sheltered by the Alps to the north, Lake Garda has a temperate Mediterranean climate.

MISCELLANEOUS

POSTAL IDENTIFICATION NUMBER

In News: This Independence Day, India is also celebrating another important milestone. The Postal Identification Number (PIN), which is used to send letters, couriers and other postal items across the country, has turned 50 today.



More on the Topic:

- The Postal Identification Number makes it easier for the postman to locate and deliver a letter or package to the intended recipient.
- The PIN system was introduced on 15 August 1972 by Shriram Bhikaji Velankar, an additional secretary in the Union Ministry of Communications.
- The first digit of a PIN code indicates the zone, the second indicates the sub-zone, and the third, along with the first two, depicts the sorting district within that zone. The final three digits are assigned to individual post offices within the sorting district.

Practice Questions



1) Which of the following statement/s is/are true?

1. Blue carbon is the term for carbon captured by the world's ocean and coastal ecosystem.
2. Sea grasses, mangroves, and salt marshes along our coast "capture and hold" carbon, act as carbon sink.

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

2) Chandler Wobble phenomena is associated with?

- (a) Earth's spin on its axis (b) Solar flares and gravity interaction
(c) Occurrence of Aurora Borealis (d) Expansion of the universe



3) In the nature, which of the following is/are most likely to be found surviving on a surface without soil?

- (a) Mushroom (b) Moss
(c) Lichen (d) Both b and c

4) In the Medieval history of India, Pallichandam is related to?

- (a) Tax-free lands to royal officials (b) Land granted to Jain institutions
(c) Tax-free lands to Brahmins (d) The intermediate section of Society



5) Which of the following statement/s is/are true?

1. Liquid Nano Urea is a nutrient (liquid) to provide nitrogen to plants as an alternative to the conventional urea.
2. Conventional urea is better than Liquid Nano Urea.

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

6) He has created a Muslim majority province of the North-West Frontier Province, sent a British expedition to Tibet, established a separate police service, and established the Archaeological Survey of India. Who is he?

- (a) Lord Mountbatten (b) Lord Curzon
(c) Lord William Bentick (d) None of the above





7) Which of the following statement/s is/are true?

1. Niger is a minor oilseed crop that is grown predominantly under rainfed conditions.
2. It is one of the 14 kharif crops for which the Centre releases a minimum support price (MSP) every year.

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

8) GI tagged Mithila Makhana is associated with?

- (a) Bihar (b) Kerala
(c) Uttar Pradesh (d) Madhya Pradesh



9) Which one of the following is the best description of INS Astradharini ?

- (a) Amphibious warfare ship (b) Nuclear-powered submarine
(c) Torpedo launch and recovery vessel (d) Nuclear-powered aircraft carrier

10) Which of the following statement/s are true?

1. Intended Nationally Determined Contribution are means for governments to communicate internationally the steps to address climate change in their own countries.
2. They are legally binding.

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



Practice Questions

- 1) Discuss the limitations that science faces in connecting with the society.
- 2) Why does Indian society have contrasting attitudes towards women?

1. c 2. a 3. d 4. b 5. a
6. a 7. c 8. a 9. c 10. a



COURSE HIGHLIGHTS

GENERAL STUDIES FOUNDATION COURSE

- 01** Comprehensive coverage of syllabus both from Prelims and Mains perspective.
- 02** Complete coverage of NCERTs from 6th to 12th std.
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