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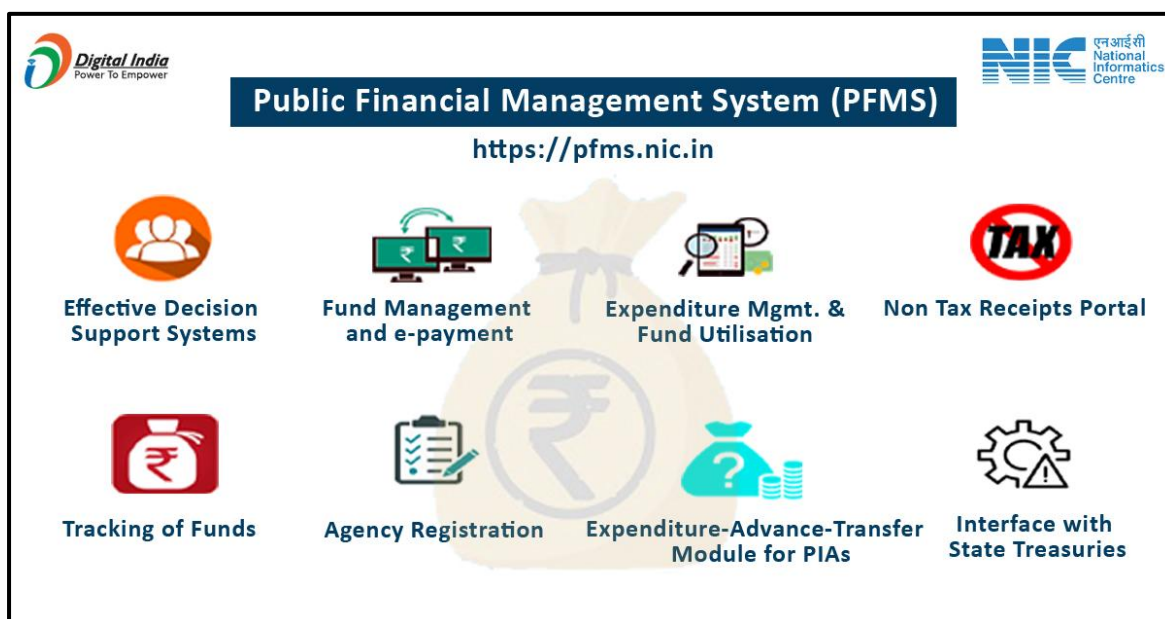
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Topic 1. PUBLIC FINANCIAL MANAGEMENT SYSTEM (PFMS)

Important for subject: Economy



The Public Accounts Committee (PAC), presented a report about the "Implementation Public Financial Management System [PFMS]".

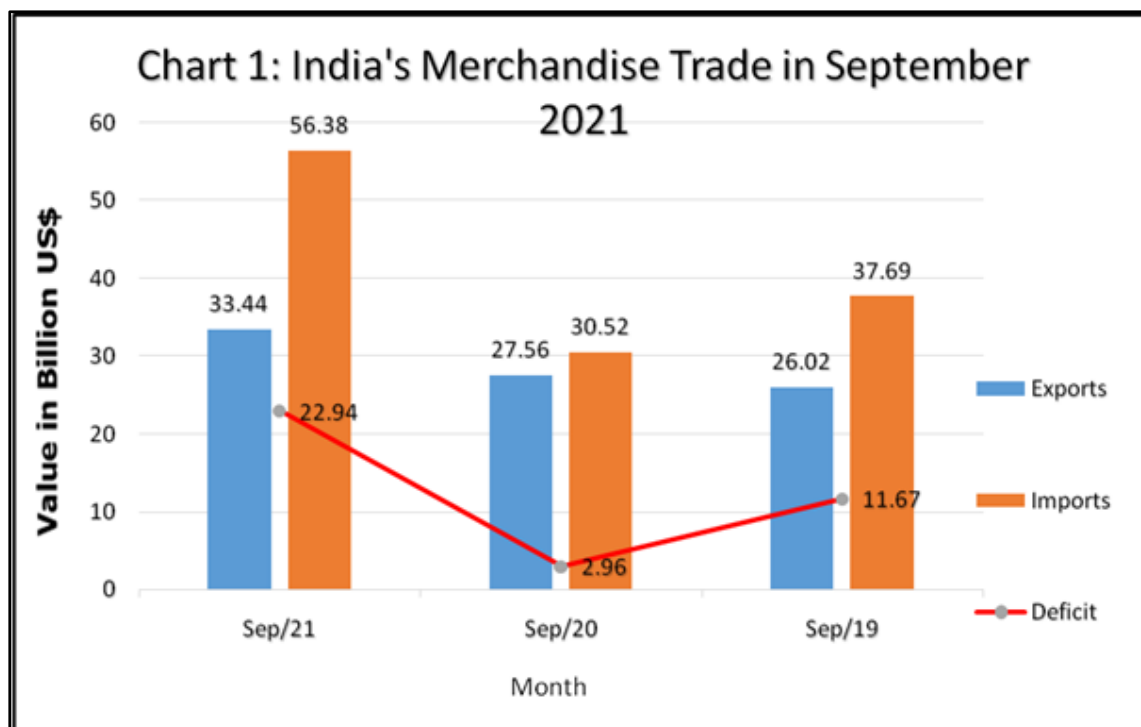
- The committee noted that the tasks associated with the implementation of PFMS seemed to have been handled casually and that there was no proper financial planning.
- The committee believed that the maintenance of fiscal prudence would be achieved by incorporating scientific methods in budgeting, projecting, and utilisation.
- The Public Financial Management System
- It was previously known as Central Plan Schemes Monitoring System, (CPSMS).
- It is an online web-based software application that was developed by and implemented by the Controller General of Accounts, Department of Expenditure Ministry of Finance PFMS began as a Central Sector Scheme in the Planning System in 2009.
- Commission with the goal of tracking funds released through all Plan schemes of Government of India and real-time reporting of expenditures at all levels of Programme execution
- The scope of the scheme was expanded to include direct payments to beneficiaries under all schemes.

- Gradually, digitization of accounts will be possible through PFMS. Later, more financial activities of Government of India will fall under the purview of PFMS.
- PFMS' primary goal is to promote a sound Public Financial.
- Management System for Government of India (GoI). to establish an efficient fund flow system and a payment cum accounting network.
- PFMS is a decision support system that provides different stakeholders with a real-time, reliable, and meaningful management information system. It's part of the Digital India initiative by GoI.
- The mandate is Financial management platform for all plans, database of all recipients agencies, integrations with core banking solutions banks handling plan funds, integrations with State Treasuries, efficient and effective tracking fund flow to the lowest implementation level for plan schemes of Government.
- Information about fund utilization across all plans and implementation agencies in the country.
- **The Public Accounts Committee (PAC), Parliament**
- The Public Accounts Committee was established in 1921 after it was first mentioned in the Government of India Act (1919 also known as Montford Reforms). Since then, it is a part of the Indian Constitution.
- PAC is one of the parliamentary that review the annual audit reports of CAG which the President presents before the Parliament of India. These three reports were submitted by CAG:
 - Audit Report on Appropriation Accounts
 - Audit Report on Finance Accounts
 - Audit Report on Public Enterprises
- The Public Accounts Committee reviews public expenditure.
- Public expenditure is not only viewed from a legal and form point of view to discover technical irregularities, but also from the point of view of economy, prudence and wisdom.
- This is sole purpose by Parliament each year with proportional representation by using a single transferable ballot (a minister cannot be elected).
- Members - 22. 15 members are elected from Lok Sabha, the Lower House, and 7 from Rajya Sabha, the Upper House.
- One year term of office

- Chairman- The Speaker appoints him/her among the members, invariably from Opposition Party since 1967.
- Its limitation is that it can only keep track of expenses after they have been incurred. It cannot limit expenses.

Topic 2. INDIA'S MERCHANDISE TRADE

Important for subject: Economy



After the Galwan clash in which 20 Indian soldiers were killed, India's imports to China rose dramatically.

- In 2021-22, China will be India's second largest trading partner after the United States.
- India-China bilateral trade was \$115.83 billion in 2021-22, which is 11.19 percent of India's total merchandise trade worth \$1,035 billion.
- After 2002-03, bilateral trade between India and China grew. China was India's largest trading partner in 2011-12, 2017-18, and 2020-21.
- Trade relations between India-USA & India-China
- In 2021-22, India's trade surplus was \$32.85 billion.
- India imported petroleum crude, coking coal, LNG, diamonds, almonds, turbo-jets,

- etc. From the USA.
- India exported - diamonds and gold jewellery with diamonds, vannamei shrimps, turbo-jets, etc.
- India's trade deficit of \$73.31 billion with China was the highest ever for any country, due to an unprecedented rise in imports from India.
- 15.42 percent of India's total imports (\$613.05 trillion) was from 2021-22
- India import-electrical equipment and parts thereof, sound recorders, reproducers, television images and sound recorders, and parts; boilers, nuclear reactors and machinery; fertilisers; plastic and plastic items; and organic chemicals.
- India exported 5% of India's total shipment (\$422 billion). This included-Ores and slag; organic chemicals; mineral fuels and products of their extraction, bituminous substances and mineral waxes; iron, steel, aluminum and articles thereof; and cotton.
- India's merchandise trading:
- India's Top-10 Trading Partners (2021-22).USA. China, UAE. Saudi Arabia. Iraq. Singapore. Hong Kong. Indonesia. South Korea.
- Top exports -Petroleum products>Pearl and Precious Stones>Iron & Steel>Drug Formulations, Biological>Gold & Other precious metal Jewellery
- Top export destination:
- Top Imports-Petroleum crude>gold>petroleum product>Pearl and Precious Stones>Coal/Coke and Briquettes, etc.

Topic 3. FOOD SAFETY AND STANDARDS (ADVERTISING AND CLAIMS) **SECOND AMENDMENT REGULATIONS 2022**

Important for subject: Economy

FSSAI drafted the Food Safety and Standards (Advertising and Claims), Second Amendment Regulations, 2022.

- It is designed to promote fairness in claims and advertising of food products, and to hold food businesses responsible for such claims/advertisements to protect consumers' interests.
- Food manufacturers must avoid misleading consumers with fancy adjectives to describe their products and brands.
- These words can be used to describe the ingredients of food, such as "natural", 'fresh",

- 'pure', original", traditional", "authentic", genuine, and "real".
- A disclaimer must be prominently placed on the label's front pack in such cases. It should state that the label is not a trademark or brand name, and does not reflect its true nature.
 - It also includes the font size for the disclaimer. Advertisements for food products that are designed to replace normal meals or undermine the importance of healthy lifestyles are prohibited.
 - Front-of-package labeling (FoPL),
 - The World Health Organization defines FoP labels to be nutrition labelling systems. They are displayed on food packages in the primary field of vision and provide simple, often graphic, information about the nutritional content or quality of the products.
 - These nutrient declarations are intended to complement the detailed information provided on the backs of food packages.
 - T The Codex Alimentarius Commission states that "FoP Labelling is intended to assist in the interpretation of nutrient declarations."
 - FoP labelling system is long regarded as one of the best global practices to encourage consumers towards healthier food choices.
 - It functions in the same way that cigarette packets are labeled with images to discourage smoking.

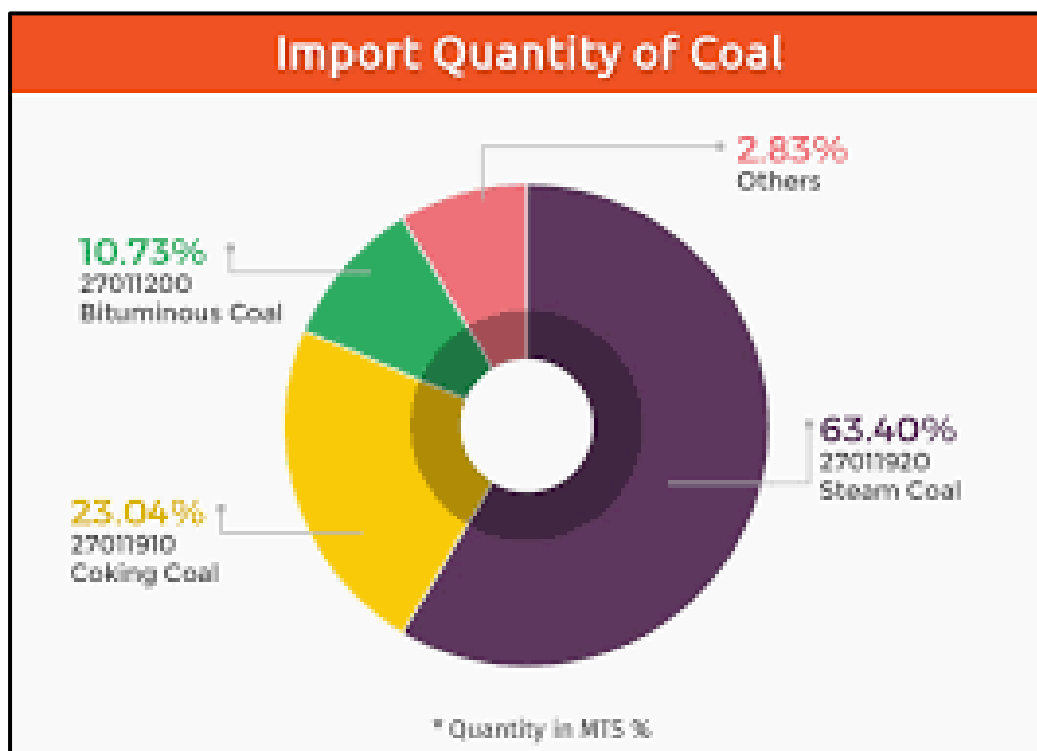
FOPL, India

- India's **Front of Package Labelling** was the first recommendation by an expert committee established by FSSAI in 2013.
- The FSSAI published draft notifications in 2019 regarding Food Safety Standards (Labelling & Display) Regulations.
- The draft requires food items to have colour-coded labels.
- The FSSAI separated FOPL from general labelling rules in December 2019.
- The FSSAI adopted the "health-star" rating system in its draft regulations for Front of Package Labelling.
- The Health-star rating system assigns a product 1/2 star to 5 stars.
- HSR formats rank packaged food items based on their salt, sugar, fat and other factors. The rating will be printed on the package's front.

- This rating is the first in India and will help consumers choose healthy foods.

Topic 4. COAL IMPORTS

Important for subject: Economy



India's coal imports will grow by 5% y-o-y to 219 Million tonnes (mt), in the current financial year.

- The domestic coal production targets and the import targets have been set at 912 mt and 219mt respectively.
- Coal India Limited (CIL), and its subsidiaries, account for most of India's coal production. CIL has established Sub-Sales and Regional Sales Offices in selected locations in India to meet the needs of various consuming sectors.
- India imports high-grade (GCV) and coking coal, as domestic production is severely limited.
- Coking Coal is imported by Steel Authority of India Limited and other Steel manufacturing units, primarily to bridge the gap between demand and availability, and to improve quality.
- Non-coking coal is imported by industrial consumers, coal traders, power plants based

on coal, captive power plant, power plants, power plants and cement plants.

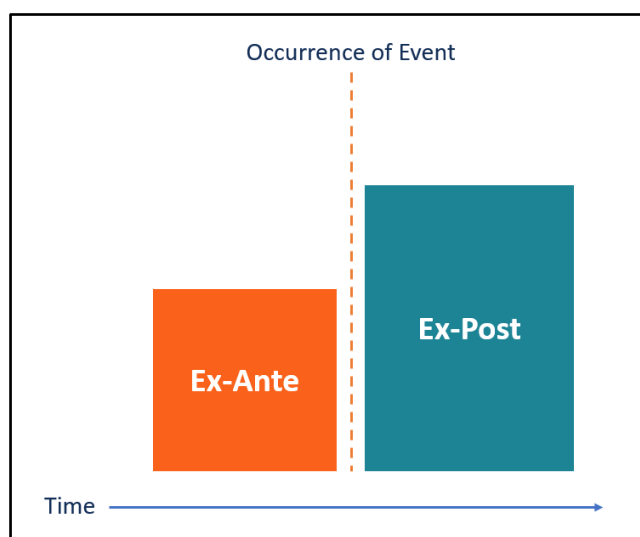
- According to the 2020-21 coal directory, India is second in imports. It imports mainly coal from South Africa, Australia, South Africa, and the USA.
- Open General License covers coal. Consumers are allowed to import coal from any source they choose, provided that the contractual prices have been paid and applicable duty has been paid.
- Coal is divided into power and non-power sectors (nonregulated sectors).
- India's largest consumer of coal, the electricity sector accounted for 64.07% in total coal consumption in India in 2020-21.
- Other important consumers include the steel- and washery industries (6.65%), sponge iron (1.06%), cement (0.75%), fertilizers and chemicals (0.19%).

Open General Licence:

- Importing products has become easier in India.
- The majority of items fall under the EXIM Policy regulation by India, Open General License.
- This means that products are freely imported without restrictions and without the need for a license, unless they are subject to the applicable laws or policies.
- The imports of items not covered by the Open General License are regulated and fall under three categories.
- Items that are prohibited or restricted
- Restricted items that require an import license
- **Canalized items** - Imported only by government trading Monopolies and Important for Subject
- Cabinet approval required for quantity and timing.

Topic 5. EX ANTE AND EX POST CONCEPT

Important for subject: Economy



Ex- Post and Ex- Ante, terms of Latin origin, refer to "after the event" or "before the event."

- In simpler terms means "Ex-ante" or "planned", and "Ex-post" means "actual or realised".
- These terminologies are used in finance to describe the return on investment or other economic activity.

Ex-Ante concept:

- It is a prediction of the returns that an investor can receive from a security or a company.
- It is therefore a forecast of the future.
- Ex-Ante can be used to predict the future and can be useful for investors, companies, economic sectors and the economy in general.
- **Example** - Ex-ante savings is the amount of savings that you have planned or saved in the past year. This refers to the savings that are intended to be made in an economy over the course of one year.

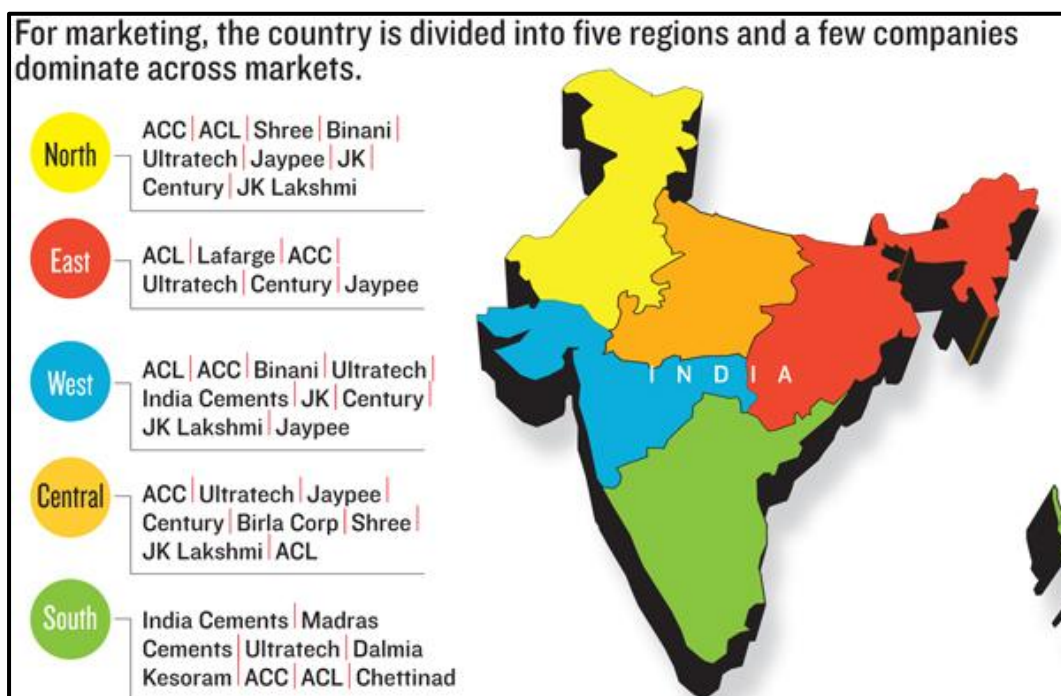
Ex-Post concept:

- It is the opposite to the Ex-Ante term.

- It refers to an event that has occurred.
- This term is crucial for people who depend on historical or actual results of safety for their decision-making.
- Ex-Post data can be used by analysts and investors to predict future prices and trends.
- They can forecast the return of a security based on its actual returns over the years.
- Ex-post savings is an example of the actual savings made by the economy during the one-year period based on the income level.

Topic 6. CARTEL IN INDIA

Important for subject: Economy



The government plans to include companies accused of cartel behavior in the "settlement and commit scheme" of the Competition Amendment Bill.

- It will allow cartels to settle with the Competition Commission of India by paying settlement fees.
- CCI defines a "Cartel" as an association of sellers, producers, distributors, traders, and service providers that, through agreement, limit, control, or attempt to control, the production, distribution or price of goods or services.
- The International Competition Network is a global organization dedicated to

enforcing the law on competition. It outlines three components of a cartel.

- Cartelization is when companies conspire to fix prices, engage in bid rigging or share customers.
- It is illegal to control prices by the government through a law.
- It creates a situation in which a single entity on the market controls all aspects of products or services to make them readily available to the public.
- While some cartels were formed to reduce competition, others were formed to facilitate illegal trade in drugs and other illegal substances.
- The Organization of Petroleum Exporting Countries is the largest cartel in the world.

Cartel and Indian Law:

- The Competition Act, 2002 prohibits cartelization in India.
- Section 3 The act prohibits and renders null any agreement between business partners relating to the production, distribution, or storage of goods or provisions for services that are likely to have an adverse effect on Indian competition.
- Section 3 also contains the provision that basically prohibits anticompetitive agreements among cartel enterprises.

This includes:

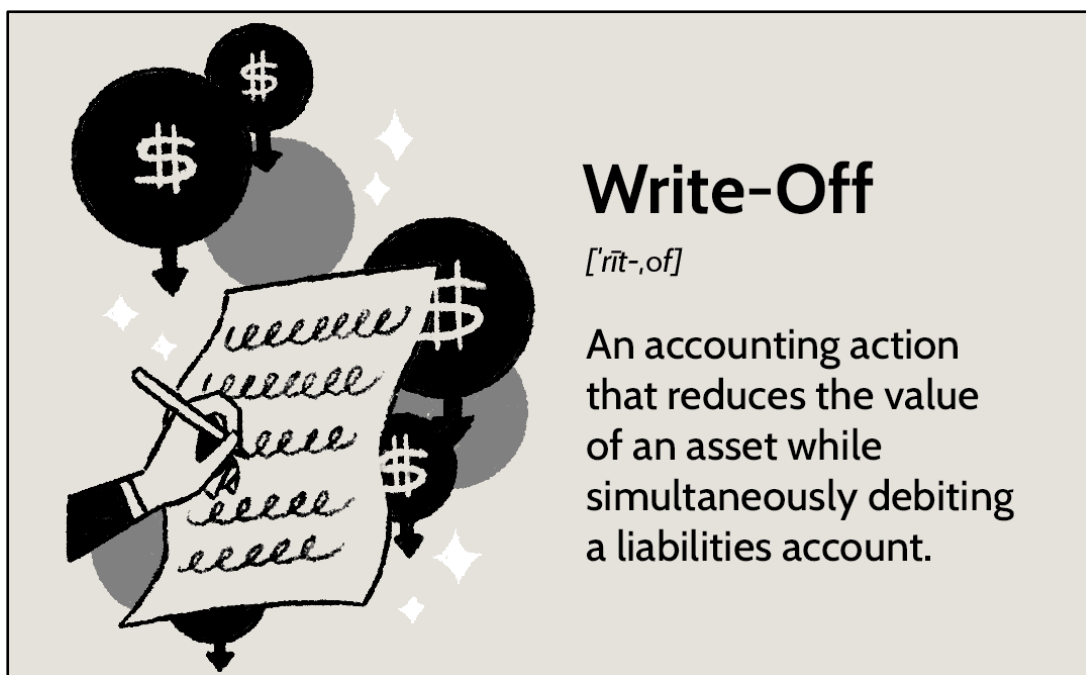
- Implicit and explicit determinations of purchase or sale of goods
- The control of investment, production and sales is limited.
- Allocation of the geographic market
- Adulging in collusive bidding.
- All companies involved in the formation and maintenance of the cartel could be penalized with a maximum of three times the stipulated earned profits or ten per cent of total turnover.
- Full exemption from penalty can be granted by CCI to any cartel member who divulges the existence and cooperates.
- This act also applies to cases with a crime in these cases:
- Non-compliance of orders issued by the competition commission
- Without reasonable grounds, breaking an order of National Company Law Appellate Tribunal Companies and individuals can both be prosecuted under the cartel

legislation enacted under the Competition Act 2002.

- The 2002 Competition Act empowers the Competition Commission of India to handle extraterritorial jurisdiction, giving it the power to inquire into any cartel operating outside India or foreign company that has formed a cartel within India.

Topic 7. WRITE-OFF

Important for subject: Economy



In the past five years, only 13 percent of total write-offs were recovered by scheduled commercial banks.

- The SCB's gross NPA ratio has fallen to 5.9% as a result of government reforms. This was March 31, 2022.

Write-off:

- It is the act of taking out a loan from your book of accounts.
- NPAs (nonperforming assets) are taken out of the bank's balance-sheet as a write-off. This includes those with full provisioning that was made after four years.
- To clean up their balance sheets, maximize capital and get tax benefits, banks write off NPAs in accordance to RBI guidelines and policies approved by their boards.

- A write-off does not provide relief for the borrower, as borrowers of written off loans remain liable for repayments and the recovery process continues. The borrower does not gain from the write-off.
- Through various recovery mechanisms, banks continue to pursue actions for recovery of written-off accounts.
- Recovery mechanisms include: filing suit in civil courts or in debt recovery tribunals; action under the Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002; filing of cases in the National Company Law Tribunal under the Insolvency and Bankruptcy Code, 2016; through negotiated settlement/compromise; through the sale of NPAs.
- Stressed assets
- Assets are loans and investments made by banks.
- The quality of the asset shows how much of the loans taken by borrowers are repaid as principal and interest.
- Unsafe assets can be further classified as NPA, substandard or doubtful assets, loss assets, etc.
- These are assets that have become non-performing assets or restructured loans and are known as 'stressed'.
- **Non-Performing Assets** - A loan whose interest/installments have not been paid for over 90 days.
- A substandard Asset is an asset that has been in NPA status for less than 12 months.
- An asset that is doubtful is one that has not been performing for at least 12 months.
- Loss assets are loans that have suffered losses as a result of fraud or error by an auditor or bank. These loans must be written off completely.
- **Restructured loans** - assets that have a longer repayment period, lower interest rate, and convert a portion of the loan into equity.
- A bad loan can be restructured to become a new loan. Restructured loans also indicate poor asset quality for banks.
- The reason is that a restructured Loan was either a NPA in the past or has been converted into a new loan.
- Written Off Assets - assets/loans that aren't considered dues.
- The bank's financial statement will show that any written-off loans have been

compensated in another way.

Topic 8. REAL INTEREST VS NOMINAL INTEREST

Important for subject: Economy

After headline retail inflation fell below 6%, India's real rate of interest has turned positive.

- The central bank's repo rates for this year had been maintained above inflation, which implies a negative real rate.
- India's retail inflation stood at 5.88% in November as compared to 6.25% of the terminal repo rate.
- While the central bank doesn't target real, it is expected to maintain an inflation-adjusted rate of 1% in order to support growth.

Nominal interest Vs. Real Interest:

- Interest Rates are the cost of borrowing and the return on savings. They are expressed as a percentage from the total amount of the loan or investment.
- The nominal interest rate is the sum of the real rate and a projected rate for inflation.
- Nominal interest rate = Real interest rate + projected rate of inflation
- The real interest rate is the return on a loan (to a lender) or bond (to an investor).
- Real interest Rate = Nominal Rate - Projected Inflation
- The Fisher Effect is the source of the formula shown above.
- This means that the real interest rate, or the return received from lenders and borrowers, drops as inflation rises until nominal interest rates rise with it.
- Nominal Interest Rates can indicate market and economic conditions, while Real Interest Rates reflect the purchasing power for investors.

Terminal repo rate:

- The terminal rate, technically speaking, is the peak where the benchmark interest rate-the Repo Rate (in India)--will come to rest before it is reduced.
- The terminal rate is more than a number.
- It's a planning point for an uncertain time, as the repo rate has all sorts of financial consequences.

- **Example** - For households, the rate can directly and indirectly influence the rates of credit cards, savings accounts and auto loans.

Topic 9. ANONYMITY IN RUPEE TRANSACTION

Important for subject: Economy

The Reserve Bank of India (RBI), has stated that the e-Rupee transactions were anonymous and that onground implementation was not clear.

- E Rupee, anonymity
- Both the person who made the payment and the recipient will receive an SMS from the respective banks, whose eRe apps are used to process the transaction.
- Currently, it is mandatory to send such messages for digital transactions. e-Re is not an exception. The transaction trail is maintained by the bank issuing the message.
- The wallet-to-wallet transactions are anonymous.
- These transactions are recorded on the bank statement.
- **Anonymity of cash holdings:**
- In 2022, the Central Board of Direct Taxes(CBDT), by amending Income Tax Rules, 1962, made PAN or Aadhaar obligatory:
- Cash withdrawal or deposit exceeding Rs 20 lakh in any one or more bank accounts, or at the post office during a financial year.
- This requirement applies to deposits and withdrawals made from cooperative bank.
- The threshold of Rs20 lakh is the sum of all deposits and all withdrawals within a calendar year.
- Opening a cash credit or current account with a bank/post office.
- For authentication as referred to in section 13A, the permanent account number (or Aadhaar) and demographic information (or biometric information) of an individual must be submitted to either the Principal Director general of Income tax (Systems), or the Director General or Director General Income-tax(Systems) with approval by the Board.
- PAN is mandatory for cash deposits exceeding Rs 50,000 per day.

Topic 10. INCOME TAX REGIME

Important for subject: Economy

Budget could alter the I-T regime-bring new ITR forms

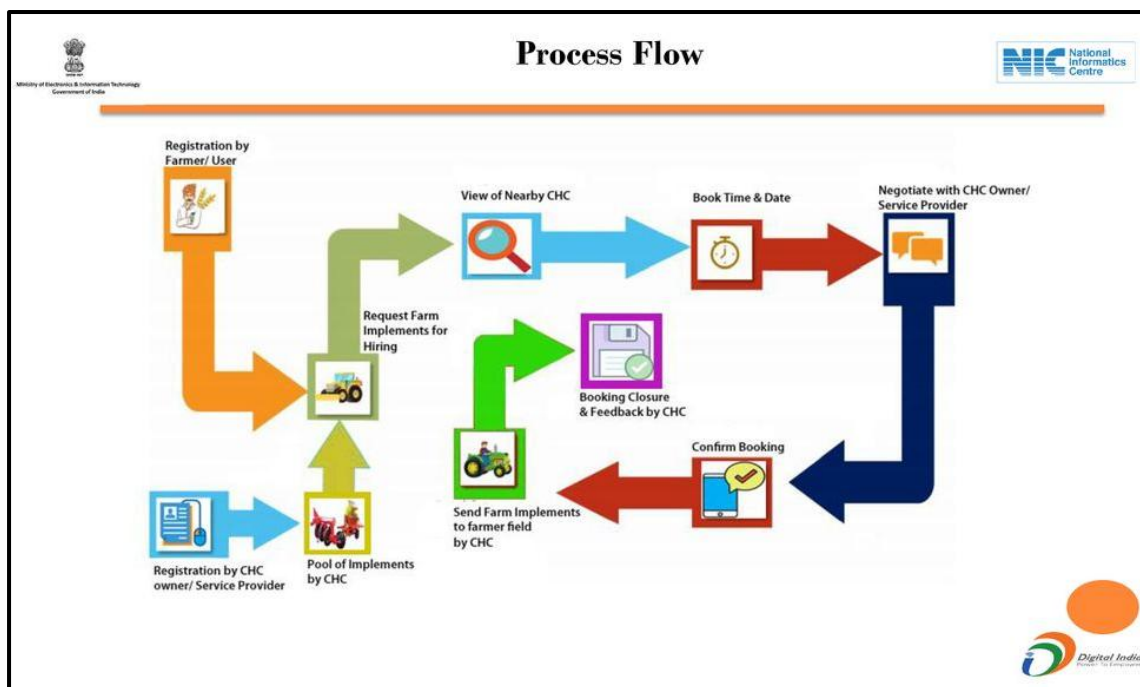
- The Budget will likely also lay the foundation for a common income tax return form.
- FY21 Budget outlined a new personal income tax system where income tax rates for individuals will be substantially reduced for taxpayers who choose to forgo certain deductions or exemptions.
- It allowed taxpayers to choose between the old and new tax regimes.
- In September 2019, a similar tax system was created for corporate taxpayers. It significantly lowers rates and eliminates exemptions.
- The base corporate tax was reduced to 22 percent for existing manufacturing companies, which were incorporated after October 1, 2019, and started operations before March 31, 2024.
- It also decreased to 15% from 25% for 25-year-old companies.
- These new rates of tax will force companies to give up all incentives and exemptions.
- **The Old Tax Regime** - This tax regime has many deductions and exclusions.
- Concessional Tax Regime (new) It requires that the taxpayer forgo certain deductions.
- These deductions include the standard deduction of Rs 50k, section 80C deduction of Rs 1.50k and interest on self-occupied property, which can be used by most taxpayers.
- Resent IT Returns;
- Income Tax Return (ITR), is a form that a person must submit to the Income Tax Department of India.
- It includes information about the person's income as well as the taxes that will be paid during the year.
- Information submitted in ITR should relate to a specific financial year.
- The year begins on the 1st of April and ends on 31 March of the following year.
- The Income Tax Department has issued 7 ITR forms- ITR-1 to ITR-2, and ITR-3 to ITR-4, and ITR-5 to ITR-6 to ITR-7.
- The applicability of each form will depend on taxpayer's income and nature. ITR Form 1 (Sahaj), and ITR Formula 4 (Sugam), are simpler forms for small and medium

taxpayers.

- ITR-1 SHAJ-A resident (other than not ordinarily so) with a total income of Rs.50 lakh.), and an agricultural income of up to Rs.5 thousand
- ITR-2 can be filed by individuals with income from residential property. Individuals and HUFs without income from business profits or gains
- ITR-3 Individuals and HUFs who earn income from the profits or gains of a business or profession
- ITR-4 Sugam -For individuals, HUFs, and Firms (other then LLP). A resident with a total income of Rs.50 lakh or more and income from work and profession.
- ITR-5 -by Limited Liability Partnerships For persons other than- (i), individual, (ii), HUF, and (iii), company filing Form ITR-7
- ITR-6 -by the companies
- ITR-7 is filed by trusts.

Topic 11. CUSTOM HIRING CENTER

Important for subject: Economy



Madhya Pradesh's government provides subsidies to farmers for the establishment of Custom Hiring Centres (CHCs), up to Rs. 25 lakhs.

- Sub Mission for Agricultural Mechanization (SMAM).
- In 2014-15, the Ministry of Agriculture and Farmers Welfare, GOI, launched the Sub-Mission on Agricultural Mechanization.
- It aims to increase the accessibility of farm mechanization to small and marginal farmers, as well as to areas with low power availability.
- Components:
 - Promotion and Strengthening Agricultural Mechanization through Training, Testing and Demonstration
 - Demonstration, Training and Distribution of Post Harvest Technology and Management (PHTM)
 - Financial Assistance to Purchase Agriculture Machinery and Equipment
 - Farm Machinery Banks to Facilitate Custom Hiring
 - For customizing, establish a high-tech, high-productive equipment hub
 - Promotion of Farm Machinery in Selected Villages
 - Promotion of Mechanized Operations/Hectare Carried Out Through Custom Hiring Centers
 - Promotion of Farm Machinery and Equipment for the North-Eastern Region.
 - Custom Hiring Centre (CHC)
 - It's a combination of farm machinery, implements, and equipment that farmers can hire.
 - CHC's main goal is to provide farm implements to marginal, small, and poor farmers at subsidized rates of hire.
 - This allows marginal farmers to start farming on time.
 - In 100 NICRA villages, there were custom hiring centers (CHCs), which provided farm implements for hire.
 - The custom hiring center is managed by a committee of farmers, nominated and elected by the Gram Sabha.
 - Village Climate Risk Management Committee (VCRMC) determines the rates for hiring machines and implements.
 - The committee also uses the revenues from the hiring fees for repairs and maintenance of implements.
 - The remainder goes to the revolving account.

- Each centre was funded by the NICRA project at a capital cost Rs 6.25 lakhs

Topic 12. ACCOUNT AGGREGATOR TRANSACTION

Important for subject: Economy



One year after its official launch, India's Account Aggregator ecosystem now boasts a staggering 1.1 billion.

- Account Aggregator - AA ecosystem
- The Account Aggregator network (AA) is a data-sharing system for financial data.
- Although the AA ecosystem was created in 2016, it was officially launched in September 2021.
- It has already registered 78 financial information users (FIUs) and 23 banks as financial information providers (FIPs).
- There are six AAs and nine in-principle AASs that are still waiting for their operating license from RBI.
- The AA platform was established by an inter-regulatory agreement between the Reserve Bank of India (RBI), the Securities and Exchange Board of India(Sebi), and the Insurance Regulatory and Development Authority.
- RBI issues licenses for AAs.
- Reserve Bank Information Technology Pvt. designed the AA framework. Ltd (ReBIT), a unit that is wholly owned by RBI.

- It is based upon the Data Empowerment and Protection Architecture frame (DEPA), also known as the Consent Layer of India Stack.
- Consumers can register with the AA at their own discretion. Customers may refuse to consent to share requests at any time.
- Account Aggregator gives individuals control over their financial data.
- An Account Aggregator is a type RBI regulated entity (with NBFC-AA licence) that allows an individual to securely and digitally access, share and access information from any regulated financial institution within the AA network.
- Data can't be shared without consent from the individual.
- Account Aggregator replaces long-term, conditional acceptance of 'blank check' with a granular permission and control for each of your data uses.

Topic 13. NHA BUILDING HEALTH EXCHANGE PLATFORM

Important for subject: Economy



The National Health Authority (NHA), is establishing a platform for health exchange that will digitally simplify and streamline the process of filing insurance claims.

- The Health Exchange Platform
- It is a digital public benefit that aims at digitizing the insurance industry.
- It is a simplified workflow that uses standardized communication protocols between the payer and provider in order to enable digitization claims processing for insurance.

This follows IRDAI guidelines.

- This will make PM-JAY the first global insurance company to use this digital solution.
- NHA has released the sandbox to this gateway in an effort to encourage players to develop digital solutions to the health claims exchange.

Ayushman Bharat Digital Mission:

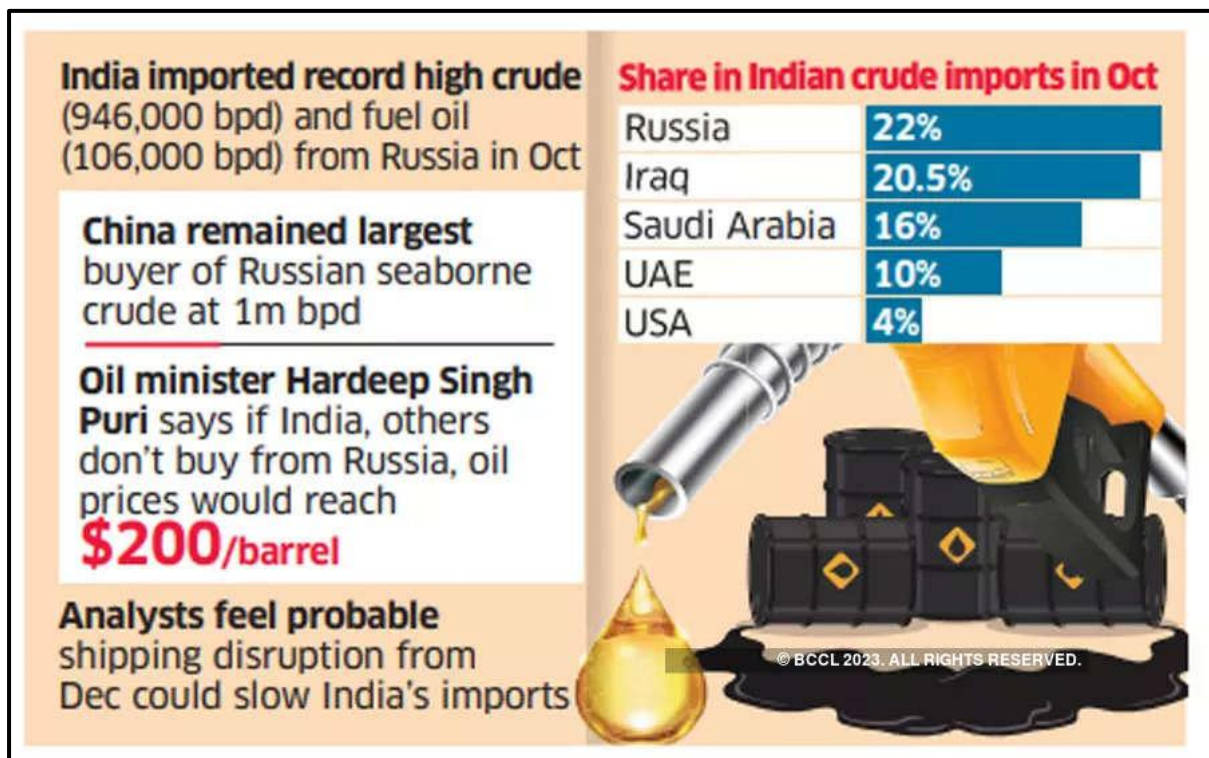
- It was launched by the Prime Minister via a videoconference in September 2021
- It will provide digital health IDs to all Indian citizens in order to assist hospitals, insurance companies, and citizens with electronic access to their health records when necessary.
- The National Health Authority under the Ministry of Health and Family Welfare is the implementing agency.
- Ayushman Bharat's Health Account (ABHA) was formerly known as Ayushman Bharat's Health ID.
- It was created to provide a digital ID for the population.
- ABHA is a unique ID for health that uses a 14-digit number.
- It can be generated by using your Aadhaar card, or your mobile number.

What are the Mission's Features?

- Health ID is issued to every citizen who will also serve as their health account.
- This health account will include details about every test, every diagnosis, and every doctor visited.
- Health ID is voluntary and free of charge.
- The second major component of the programme includes creating a Healthcare Facilities Registry and Healthcare Professionals Registry (HPR), which allow easy electronic access for healthcare professionals and infrastructure.

Topic 14. RUSSIA INDIA TOP OIL SUPPLIER

Important for subject: Economy



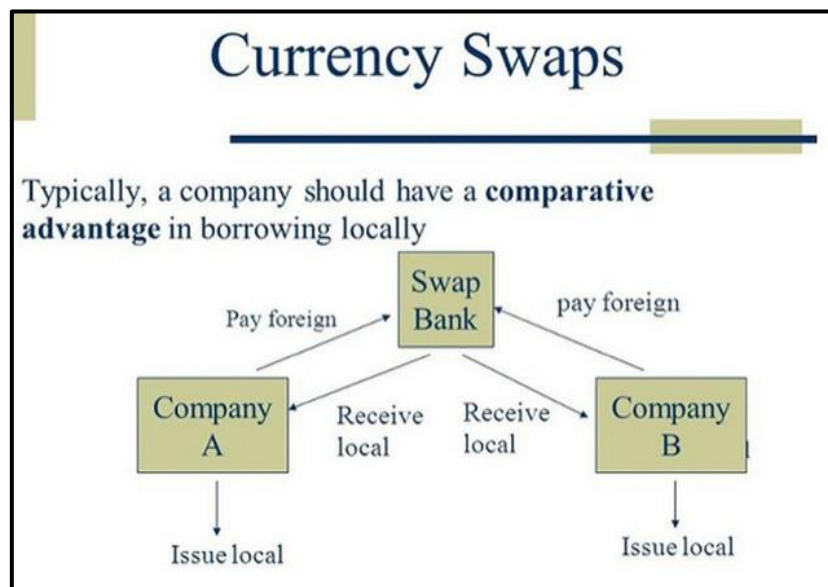
According to reports, India has become the largest crude oil supplier to Russia since October 2022. This is due to refiners increasing their purchase of seaborne oil at a lower price.

- India has traditionally sourced its bulk crude oil from Saudi Arabia, Iraq, and the United Arab Emirates.
- Trade with Russia now exceeds trade with other countries like Australia, Indonesia, Iraq and Singapore.
- India-Russia has identified intensifying trade and economic relations as a priority and set targets for increasing bilateral investment to \$50 Billion and bilateral trade to \$30 Billion by 2025.
- According to the Department of Commerce figures, bilateral trade in FY 2021-22 was \$13.2 billion
- Indian exports were \$3.26 Billion, and Russian imports were \$9.86 Billion.
- The bilateral trade between India and Russia reached an all-time high in April-August 2022 at \$18.23 billion. India imported \$17.23 billion while India exported \$992.73 million to Russia.

- India has exported very little to this country.
- The most important exports from India are electrical machinery, pharmaceuticals and machinery and mechanical devices, as well as organic chemicals and iron & steel.
- The most important items that Russia imports are oil and petroleum products and fertilizers, as well as precious stones and metals and vegetable oils.
- The bilateral trade in services remained steady over the past 5 years, with Russia's trade balance in Russia's favor. It was \$1.021 billion in 2021.
- The bilateral investments between these two countries are strong and have surpassed the \$30 billion target in 2018.
- Russia's major bilateral investments in India are made in the oil, gas, petrochemicals and banking sectors. Indian investments into Russia are mainly in the oil, gas and pharmaceuticals sector.
- During April-August 2022, Russia was the seventh most important trade partner.
- India was also the fifth-largest trade partner due to an increase in oil imports from Russia in September.

Topic 15. SAARC CURRENCY SWAP FRAMEWORK

Important for subject: Economy



The Reserve Bank of India and the Maldives Monetary Authority have signed a Currency Swap Agreement under the SAARC Currency Swap framework.

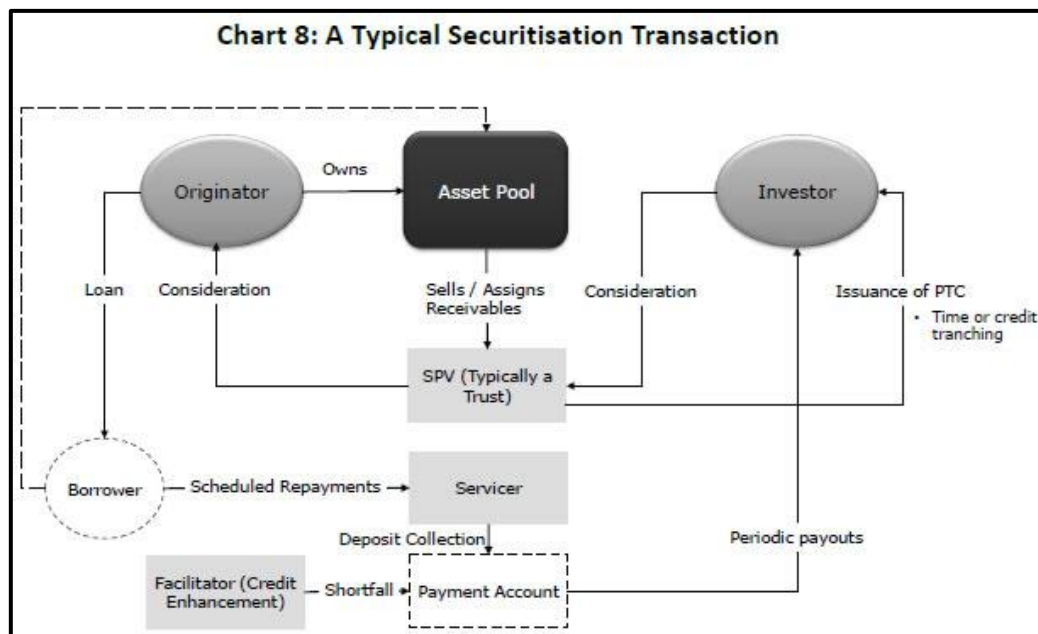
- The MMA will be able to draw in multiple tranches from the RBI up to USD 200 million. This will allow it to fund short-term foreign exchange liquidity needs.
- **SAARC currency Swap Framework**
- The SAARC currency swap facility was launched on 15th November 2012.
- Within the USD 2 billion total corpus, the RBI may offer a swap arrangement.
- Swap drawals can be done in US dollars, Indian rupees or euro.
- Swap drawals in Indian rupees are permitted within the framework.
- All SAARC member countries will have access to the facility, subject to them signing bilateral swap agreements.
- SAARC includes Afghanistan, Bangladesh, Bhutan and India as well as Nepal, Pakistan, Sri Lanka, India, Maldives, Nepal and Pakistan. The framework is in effect from November 14, 2019, to November 13, 2022 (extended until 2022).

Currency swaps arrangement?

- A currency swap is an agreement between two countries to exchange currencies. It involves the execution of a contract with predetermined terms.
- To meet short-term foreign currency liquidity requirements or to provide sufficient foreign currency to avoid the Balance of Payments crisis still further arrangements can be made, central banks and governments engage in currency swaps.
- Swap operations are without exchange rates or other market risks because the transaction terms have been agreed in advance.

Topic 16. RBI RULE ON LOAN SECURITISATION

Important for subject: Economy



New guidelines were issued by the Reserve Bank of India (RBI), prohibiting securitization of loans that have a residual maturity of less than one year.

- Short-term securitization prohibition would impact approximately 5% of market, including the microfinance institutions and gold loan financiers (MFI).
- Securitization refers to the pooling assets into repackaged, interest-bearing securities.
- In 2006, the Reserve Bank of India (RBI), established guidelines for securitisation of standard assets.
- Standard assets (or performance assets)-assets in which amounts due have not been due for more than 90 calendar days.
- The guidelines provide a regulatory framework for securitisation standard assets by banks and All India Term Lending and Refinancing Institutions as well as non-banking financial companies (including RNBCs).
- Securitisation is a 2-stage process:
 - The first stage involves the sale of single assets or pooling, and then selling of pooled assets to a special purpose vehicle (SPV), in return for an instant cash payment
 - The second stage involves repackaging the security interests and selling them to third-party investors.

- This is done by issuing tradable bonds securities.
- Securitisation Guidelines recommend a minimal retention requirement between 5 and 10 percent for assets to be securitized.
- The assets are kept on the books by the originator for a minimal period before securitisation.
- The Securitisation Guidelines specify certain assets that can't be securitized, including securitisation exposures, and revolving credit facility loans with bullet payments.
- The Securitisation, Reconstruction and Enforcement of Financial Assets Act, 2002 deals specifically with the resolving, restructuring, and securitisation non-performing assets (NPAs).
- Section 5 of the Reconstruction and Securitisation of Financial Assets Act, 2002, specifies that only banks and financial institutions are allowed to securitize their financial assets.
- Central Registry of Securitisation Asset Reconstruction and Security Interest of India_CERSAI
- The Government of India has established it as a company pursuant to section 8 of 2013 Companies Act.
- The company's purpose is to maintain and run a Registration system for the purpose registration of transactions of securitisation or asset reconstruction of financial assets, and the creation of security interests over property, as per the Securitisation & Reconstruction of Financial Assets & Enforcement of Security Interest Act (SARFAESI Act), 2002.
- CERSAI was created to detect and check fraud in lending transactions against equitable Mortgages, i.e. to discourage and stop the practice of taking out multiple loans from different banks using the same asset.
- **Major shareholders** -51% by Central Government, rest by selected Public Sector Banks and National Housing Bank.

Topic 17. EXPORT COOPERATIVE BODIES

Important for subject: Economy

Vigyan Bhavan hosted a conference to mark the 100th International Day of Cooperatives.

- Major announcements

- To help increase exports, the Centre will establish a National Cooperative Export Society.
- Primary Agriculture Credit Societies might be permitted to sell petroleum products and run PDS shops.
- The computerization of primary agriculture credit societies will be done.
- To help farmers export their products, the Union government established the Cooperative Sector Exports Promotion Forum (CSEPF) in 2019.
- The 1962 National Co-operative Development Corporation Act established the National Cooperative Development Corporation as a statutory Corporation within the Ministry of Agriculture and Farmers' Welfare.
- The NCDC is the only statutory organization that functions as an apex financial development institution entirely devoted to the cooperative sector.
- NCDC's objectives are to promote and plan programmes for agricultural products, foodstuffs, livestock, and other notified commodities.
- The Corporation supports, strengthens, and develops farmers' cooperatives in order to increase production and productivity. It also establishes post-harvest facilities.
- The Corporation's main focus is on programs of inputs and marketing, processing and storage, cold chain, marketing, and distribution of agricultural produce and supplies seeds, fertilizer, and other inputs.
- The nonfarm sector's mission is to provide facilities for cooperatives to generate income. A special focus is on the weaker sections, such as dairy, livestock and sericulture.

Primary Agricultural Credit Societies

- It is a village-level organization that works directly with rural residents.
- It encourages farmers to save, takes deposits, lends to deserving borrowers, collects repayments.
- PACS is the lowest unit within a three-tier structure. The other two levels are State Cooperative Banks and District Central Cooperative Banks.
- Organizational Structure of PACS
- The General Body of PACS: You can exercise control over the board and management.
- Management committee: Elected to fulfill the duties as set forth in the society's by-

laws, rules, and acts.

- Chair, Vice-Chairman and Secretary: Work in the best interests of the members by fulfilling their respective roles and duties.
- Office staff: Responsible to perform day-to-day work.

Topic 18. SUBORDINATE DEBT AND PREFERENCE SHARE

Important for subject: Economy

Foreign investors can invest in preference shares or subordinated debts issued by Indian insurers through the IRDAI.

- Foreign investors cannot invest in these two instruments -- preference share and subordinated loan - beyond the sectoral limit (specified by FEMA).
- The total quantum of the instruments in 'other forms capital' should be less than (i) 50% of an insurer's total equity share capital or securities premium, or (ii) 50% of the insurer's net worth.
- Subordinated debt should be issued perpetually or for life insurance companies, general insurers, and reinsurance companies the maturity/redemption period must not be shorter than ten years.
- For health insurance companies, the maturity/redemption period must not be shorter than seven years.
- Insurance companies are not allowed to issue preference shares or subordinated bonds with a "put option"

Preference Shares:

- Prefer stock is a type of stock that has dividends and shares.
- These dividends are paid to shareholders before common stock dividends. Prefer stockholders can be paid out of company assets prior to common stockholders in the event of a company's bankruptcy.
- Preference shares generally have a fixed dividend while common stocks do not.
- Common shareholders have voting rights but prefer stock shareholders don't.
- Preference shares fall within four categories. cumulative prefer stock, noncumulative prefer stock, participating preferred Stock, and convertible preferred Stock.

- **Cumulative preference Share:** Cumulative preferences shares are a special kind of share that allows shareholders to receive a cumulative dividend payout even if a company isn't making any profits.
- These dividends will be considered arrears in years where the company does not earn profit. They will be paid on an annual basis when the business makes profits.
- **Non-cumulative preferred shares:**
- These shares don't accumulate arrears dividends.
- Non-cumulative preference stocks pay dividends based on the company's profits for the current year.
- If the company fails to make profits in a given year, the shareholders do not receive any dividends and cannot claim dividends for any subsequent profit year.
- **Participating preference stocks:** These shares let shareholders demand a share of the company's surplus profit in case of liquidation after dividends have been paid.
- These shareholders receive fixed dividends and a share of the company's surplus profit.
- **Convertible Priority Shares:** Convertible preferences shares allow shareholders to convert preference shares into equity shares at a fixed price after a period specified in the memorandum.

Subordinated debt:

- It is also known as a subordinated bond.
- This is an unsecured bond or loan that is not subject to earnings or assets claims.
- Subordinated debentures can also be known as junior securities.
- If a borrower defaults, creditors with subordinated debt won't be paid until senior bondholders have been paid in full.
- It is more risky than unsubordinated and is listed on the balance sheet as a long-term liability.
- Call option, and Put option
- A derivative is a contract giving the buyer the option to purchase or sell the underlying asset at a specific price. There are two types:
- **Call options-** Calls allow the buyer to purchase the underlying asset at a strike price that is specified in the option agreement. Calls are bought by investors when they think the price of the asset will rise and sold if it falls.

- Put options-Puts allow the buyer to have the option, but not the obligation to, sell the underlying asset at a specified strike price.
- If the buyer exercises their option, the writer (seller of the option) is obliged to purchase the asset.
- Puts are bought by investors when they think the price of the underlying assets will fall and sold if it increases.

Topic 19. FOREIGN SOURCE UNDER THE FOREIGN CONTRIBUTION (REGULATION) ACT 2010

Important for subject: Economy

The Union Home Ministry released a list containing 117 organizations whose contributions to Indian entities are not covered by the Foreign Contribution (Regulation Act) 2010.

- The UN agencies and international bodies are "not covered" by the FCRA definition of "foreign sources".
- This includes the UN System's Secretariat and Joint United Nations Programme on HIV/AIDS/AIDS (UNAIDS), Office of the UN Human Rights High Commissioner (OHCHR), Office of the UN Human Rights High Commissioner (UNHCR), Office of the UN Human Rights High Commissioner (OHCHR), Office of the UN Human Rights High Commissioner (OHCHR), Office of the UN Human Rights High Commissioner (UNHCR), United Nations Conference on Trade and Development Conference on Trade and Development Conference on Trade and Development Conference on Trade and Development (UNCIAD)
- Foreign source as per the Foreign Contribution (Regulations) Act, 2010. Indian organisations receiving foreign money are mandatorily registered under the Foreign Contribution (Regulations) Act, 2010.
- Organisations/associations in India can accept contributions from a "Foreign Source" only if they are registered with the Ministry of Home Affairs or only after obtaining prior permission from the above Ministry.
- The "Foreign source" is defined in Section 2 (e) of Act.
- It includes: any government of any foreign territory or country and any agency thereof; any international agency, except the United Nations or any specialized

agencies thereof; a foreign corporation; a corporation, but not a foreign corporation; a multinational corporation an entity that has more than one-half its nominal value and is held by one or more of these entities:

- The Government of a Foreign Country or Territory;
- The citizens of a foreign country;
- Corporations established in another country or territory
- Trusts, societies and other associations of individuals
- Foreign company; trade union in any country or territory, regardless of whether it is registered there; foreign trust or foundation that is primarily financed from a country or territory; society, club, or other association formed outside India; citizen of a country.
- Remittances by Indians abroad, i.e. Indian citizens, for the purpose of contributing to the aforesaid associations/organisations do not attract the provisions of FCRA.
- Non-resident foreign citizens of Indian descent will contribute through their NRE or FCNR accounts in India.
- The provisions of FCRA will attract these contributions and they are to be considered "Foreign Source".

Topic 20. IRDAI OPENS BANASSURANCE FLOODGATES FOR ALL INSURERS

Important for subject: Economy

The bancassurance channel has been widely opened by the IRDAI insurance regulator as part of an overall effort to increase the country's insurance penetration.

- To achieve the long-term goal 'insurance coverage for all' by 2047 when the country celebrates its golden jubilee.
- Every bank can now tie up with 9 life insurance companies, 9 general insurers, and 9 health insurance companies.
- **About Bancassurance**
- Bancassurance, also known as Bank Insurance Model, refers to the distribution by Banks of insurance and financial products. This is not insurance.
- This partnership arrangement can prove to be lucrative for both banks.
- The term Bancassurance was first used in France in 1980 to describe the sale of insurance products via banks' distribution channels.

- Insurance companies can increase their customer base without increasing their sales force, while banks earn more revenue by selling additional insurance products.
- The Banks must obtain a prior license through the IrDA (Insurance Regulatory and Development Authority) in order to be able to work as "Composite corporate agents" or have a "Referral Arrangement" with the Insurance Companies.
- RBI Guidelines According to the Government of India Notification, dated August 3, 2000, indicating that 'Insurance' is a permissible business form that banks could undertake under Section 6(1)(o), Banking Regulation Act, 1949.

Models of Bank assurance

- **Referrral Model**
 - Bank will provide office space for the insurance company at its branches.
 - The bank branch will be manned by the insurance staff who will sell their products to customers.
 - Selling is not an activity that bank staff can take part in.
 - Bank faces no risk. Fixed-fees are paid by insurance company for the use of office space.
- **Corporate Agent Model**
 - Bank tie up with one life, one insurance company that is not related to the body and one insurance company that covers the health. Take this example:
 - This is the preferred model for most banks.
 - The bank sells policies only from one insurance company. This means that the customer is not allowed to choose, even though other insurance companies offer better options. Customer is not responsible for bank.
- **Broker Model**
 - A bank can sell policies from multiple insurance companies under one roof. Multiple life insurance companies, general insurance companies, and multiple insurance companies offer different insurance products.
 - The sales agreement with a company is what earns the bank commission.

Topic 21. BANK RUNS AREN'T WHAT THEY USED TO BE

Important for subject: Economy

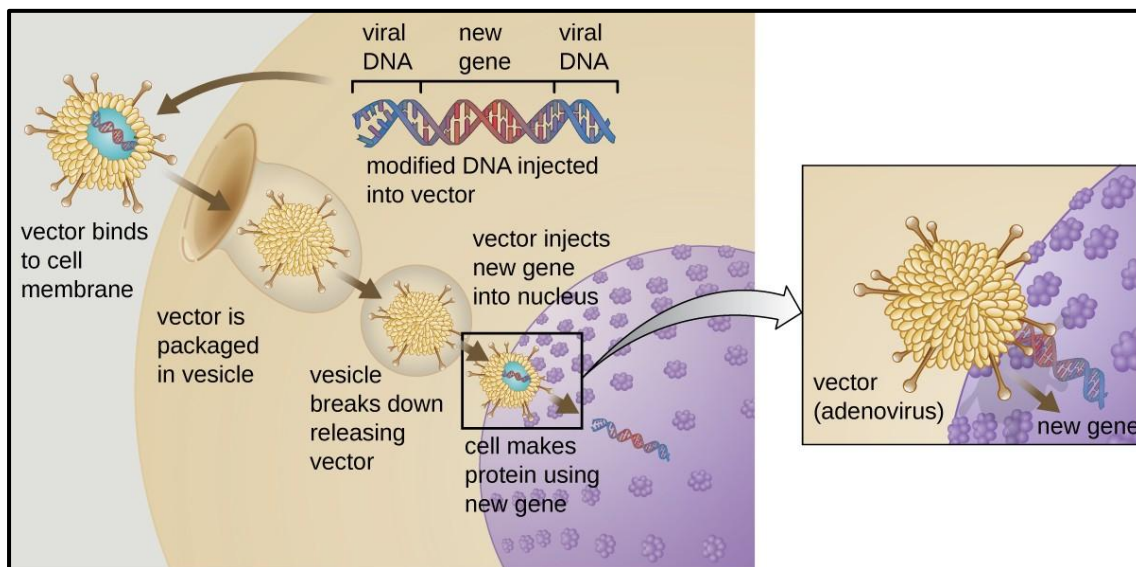
The financial collapse of Crypto Exchange FTX, the flooding of assets out Credit Suisse Group AG, and the limitations on fund redemptions by Blackstone Real Estate Income Trust BREIT - all have been referred to as "bank runs". Economic Google searches for "run on the banks" show that these are at levels not seen since 2008's global financial crisis.

What is Bank Run?

- Bank runs are when large numbers of depositors withdraw money simultaneously from banks in fear that the institution will go under.
- Banks will run out of cash as more people withdraw money.
- In the end, they may default.
- Bank runs have happened throughout history, including during the Great Depression or the 2008-09 financial crises.
- In 1933, the Federal Deposit Insurance Corporation was created in response to a bank ran.
- As a statutory body, the Deposit Insurance and Credit Guarantee Corporation of India was established in 1978.
- Silent bank runs can occur when funds are withdrawn electronically rather than in-person.
- Silent bank runs, when compared to bank runs, are invisible to most people as they withdraw through electronic mode.
- **Preventive steps to prevent bank runs**
- Since 2010, the RBI has published half-yearly Financial Stability Reports (FSR). One section of this report is devoted exclusively to the commercial banking sector.
- As a regulator, the central bank ensures that banks can meet these risks.
- The Capital-to-Risk Assets ratio (CRAR) ensures that a bank's capital base is protected.
- Cash Reserve Rate (CRR) and Statutory Limitation Ratio (SLR) are measures that ensure that banks can return customers' deposits on demand.
- The RBI has also adopted international standards set forth by the Basel committee for banking supervision and financial stabilization board.

Topic 22. HOW GENE THERAPY COULD CURE CANCER

Important for subject: Science and Technology



Scientists in the United Kingdom have reported that a new type of cancer therapy has been successful in treating a teenage girl named Alyssia with T-cell acute Lymphoblastic Leukaemia.

- T-cell acute Lymphoblastic Leukaemia:
- T cells are a group of white blood cell that are capable of neutralising and hunting down threats to the body.
- This form of cancer is caused by T cells that turn against the body and destroy healthy cells that normally aid in immunity.
- It is progressive and rapid. Treatments include chemotherapy and radiation therapy.
- A new experimental gene therapy relies on , a technique that allows for base editing. It was successful in treating Alyssia, a teenage cancer patient.

What is base editing?

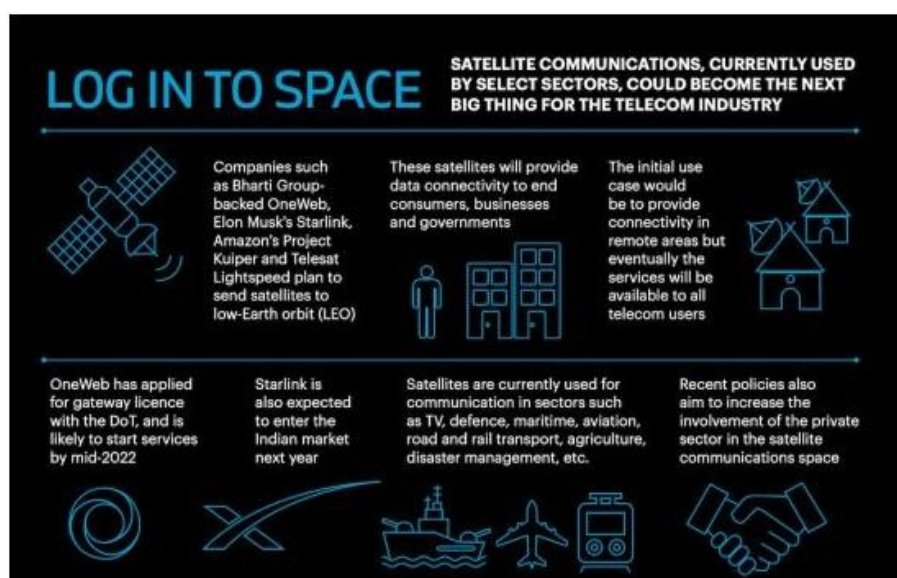
- A person's genetic code consists of multiple permutations from four bases: Adenine, Guanin (G), Cytosine (C), and Thymine (T).
- These bases are similar to the letters of the alphabet and form genes which are instructions to make the large number of protein required for the body's functions.
- These base sequences of genes can be edited with the help of a tool called

- "Base-editing" is also known as the CRISPR-cas9 System.
- CRISPR-cas 9 is a system that includes an enzyme that functions like molecular scissors.
- It is possible to make a cut in DNA at a specific location. A guide RNA can also be used to insert a modified genetic code at the locations of incision.
- David Liu of the Broad Institute in Massachusetts has created the CRISPRcas9 system that allows for the direct modification of certain bases. Thus, a C can become a G or T into an A.
- base editing, although still in its infancy, is more effective at treating blood diseases that are caused by single point mutations or when a single base pair change can cause terminal illness.
- What did base-editing do for Alyssia?
- Alyssia's T cells had developed cancerous, possibly due to a mis-arrangement of the sequence of bases .
- This misalignment can be corrected and could lead to a stronger immune system.
- Scientists have been able to successfully arrange the sequence bases that will produce healthier T cells. This can help her immune system grow.

Topic 23. INDIA LIKELY TO BE FIRST TO HOLD SATELLITE SPECTRUM

AUCTION: TRAI CHAIRMAN

Important for subject: Science and Technology



India will be the first country to auction spectrum for satellite communications (SatCom), and it should be designed in a way that attracts investments in the sector. Vaghela said.

- It was revealed at the Broadband India Forum summit about SatCom.
- It will improve the ease-of-doing business within the space sector.
- India is the first to deal with the issue of space base spectrum auctions.
- TRAI has yet to produce a consultation paper about the spectrum auction according to the standard process for satellite communication.
- Satellite industry players oppose the auction of spectrum allocation for satellite communication. Telecom operators have suggested it.
- What is Satellite Communications (SATCOM), and how can it help you?
- Satellite communication refers only to communication links that use an artificial satellite as a propagation path.
- Satellite communication refers to the transmission of information using satellites orbiting around the earth.

What are the benefits to satellite communication (SATCOM) in India?

- Reached previously inaccessible terrains and areas with hilly terrains.
- Accessible areas are more accessible with a lower cost
- Improved reliability, quality and communication

Concerns:

- Satellite communication can be expensive
- Establishing ground stations or gateways will require approvals from each country. There could also be restrictions with conservative regulators.
- There is no policy specific to international internet gateways that Universal Licence (UL), has a clear policy.
- **Telecom Regulatory Authority of India -**
- The Telecom Regulatory Authority of India Act 1997 established the TRAI (a statutory entity) on February 20, 1997.
- **Objectives for TRAI:**
- TRAI's mission is to foster and support growth in telecommunications within the

country.

- TRAI regulates telecom services, including fixing/revising tariffs for services that were previously vested in Central Government.
- It also aims at providing a transparent and fair policy environment that promotes fair competition and equal playing fields.
- **Headquarters: New Delhi.**

Composition of TRAI

- **Members:** The TRAI consists of a Chairperson and two full-time members.
- **Terms of office:** The chairperson and the other members will hold office for three years or until they turn 65, whichever comes first.
- **Chairperson:** The Chairperson is the one with general superintendence powers.
- He/She preside over the meetings at the TRAI.
- **Vice Chairperson:** The Central Government might appoint one of the Authority members as Vice-Chairperson for TRAI.
- In the absence of the Chairperson, the vice-chairperson exercise and discharges the powers or functions of the Chairperson.
- **Removal of members:** The Central Government has the power to remove any member from the TRAI if he/she wishes:
 - adjudged insolvent
 - A crime that involves moral turpitude has been committed and he was convicted
 - Has become mentally or physically incapable of being a member
 - Has abused his/her position, making his/her continued in office prejudicial
 - To the public interest.

TRAI meetings:

- The Chairperson is able to organize the meetings at certain times. The Chairperson preside over meetings.
- The meetings are presided over by the vice-chairperson in the absence of the chairperson.
- If there is no vice-chairperson, any other member may be elected from the authority to preside at the meeting.

- The majority vote of members present at the meeting determines the outcome.
- If there is an equality in votes, the Chairperson or the member who presided the meeting gives a second or casting ballot.

What are the functions of TRAI?

- **Makes recommendations:** The TRAI's function is to make recommendations about the following:
 - Notification of the need to introduce a new service provider
 - Non-compliance with terms and conditions of license may result in the suspension of your licence.
 - To facilitate their growth, measures are taken to promote competition and efficiency in the operation telecommunication services.
 - Technological advancements in the services offered by service providers
- **Discharge Of Responsibilities** The TRAI is responsible to discharge the following functions:
 - Assisting in compliance with terms and conditions of license.
 - Ensure technical compatibility and interconnection between service providers.
 - Establishing the quality standards for service providers.
 - Assuring quality service and conducting periodic surveys.
 - Notifying promptly and in writing the rates at which the telecommunications are being performed
 - The TRAI Act 1997 shall provide services both within India and abroad.
- **Recommendations that aren't binding:** The recommendations made by the TRAI do not bind the Central Government.

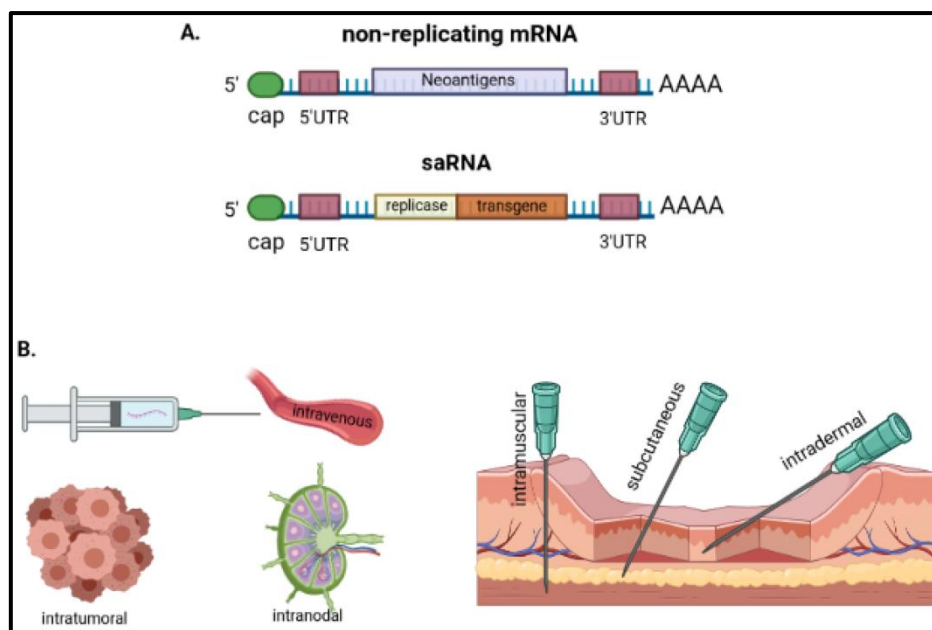
What are the Powers of TRAI?

- **Order to Furnish Information:** The Authority can ask any service provider for information or explanations relating to their affairs.
- **Appointments to Inquiry:** The Authority can appoint one to three persons to inquire into the affairs of any service provider.
- **Order to Inspect:** This authority can direct any of its employees or officers to inspect any service provider's books of accounts and other documents.

- Provide Directions to Service Providers The Authority will have the power and authority to issue any directions it considers necessary to ensure service providers' proper functioning.

Topic 24. MODERNA'S MRNA CANCER VACCINE SHOWS PROMISE IN EARLY TRIAL

Important for subject: Science and Technology



In a clinical trial, patients in a mid-stage clinical study were given a customized Moderna Inc. vaccination and a Merck & Co. skin drug to prevent the recurrences of their skin cancer melanoma.

- Combining the Moderna's experimental vaccine with the Merck immunotherapy drug Keytruda decreased the risk of death and recurrence in high-risk patients by 44% , compared to treatment with only Keytruda.
- Scientists have long been studying the potential of mRNA technology, which is most well-known for its use in Covid-19 jabs to deliver a vaccine that targets cancer tumours.

What is mRNA Vaccine Therapy?

- mRNA vaccinations use messenger RNA to instruct our cells how to make a

particular protein or trigger an immune response.

- If the virus infects our bodies, this immune response (which produces antibodies) protects us.

What is the difference between mRNA Vaccines and traditional Vaccines?

- Vaccines train the body to recognize and respond to proteins from disease-causing organisms such as bacteria or viruses.
- Traditional vaccinations consist of small, inactivated or whole-disease-causing doses of the organism,, or the protein it produces.
- These are introduced to the body to stimulate the immune system to mount a response.
- The body is tricked into producing certain viral proteins by mRNA vaccines.
- They use using the mRNA (or messenger RNA), which is the molecule that basically puts DNA instruction into motion. MRNA is used inside a cell to create a protein.
- What are the advantages of using mRNA-based vaccines?
- mRNA vaccines are considered safe if they are not infectious, non-integrating in nature, and degraded according to standard cellular mechanisms.
- They are very efficient due to their inherent ability to be translatable into the protein structures within the cell's cytoplasm.
- mRNA vaccinations are fully synthesized and don't require any host to grow, e.g. eggs or bacteria.
- They can therefore be easily manufacture din expensive to ensure their availability and accessibility for mass vaccinations on a sustained basis.
- Melanoma carcinoma:
 - Melanoma is the most dangerous and rarest form of skin cancer.
 - It is found in melanocytes cells.
 - Melanocytes make melanin, which is responsible to the skin's color.
 - It is still not known what causes melanoma.
 - This disease is more common in younger women (under 35- 40).

Melanoma Causes:

- It is unknown what causes Melanoma carcinoma.

- The risk of developing melanomas is increased by exposure to UV (UV) radiation in sunlight.
- You can reduce your risk of developing melanoma by limiting UV radiation exposure.

Melanoma symptoms:

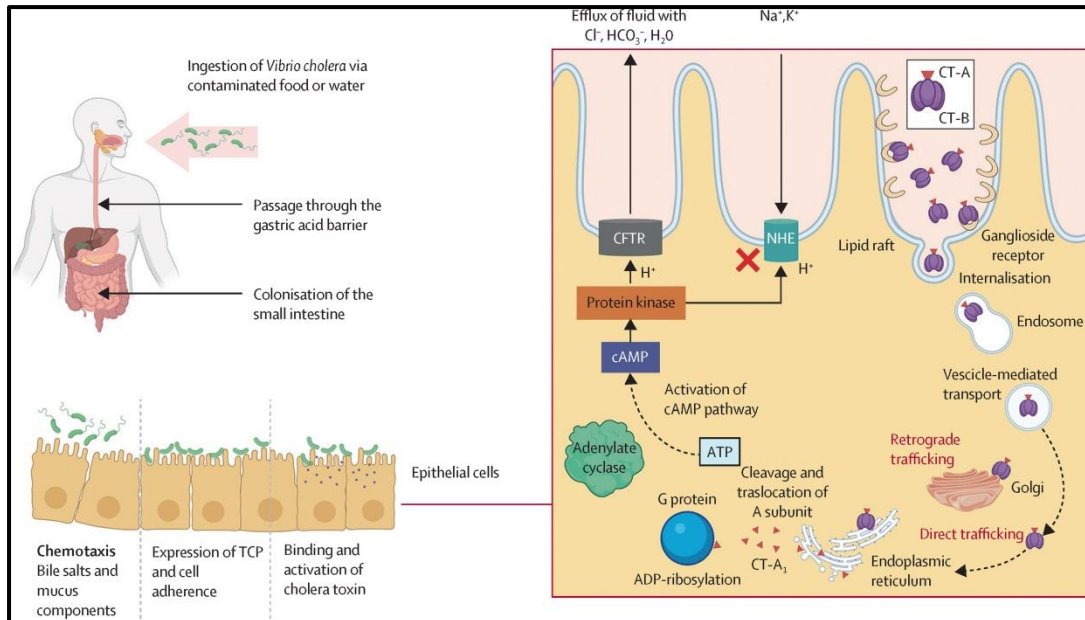
- Skin cancer can occur anywhere on the body, including legs, arms and face.
- There are very few visible signs:
- Change in existing mole.
- Feel the change.
- Unusual skin growth.
- New spots on the skin may appear.

Risk factors for Melanoma carcinoma:

- Treatment of Melanoma Carcinoma:
 - The severity of the condition will determine the treatment options for melanoma. These are the available treatments for melanoma.
 - Surgery is used to remove melanocytes from chemotherapy-affected patients.
 - Melanoma can be treated with immunotherapy.
 - IMLYGIC and OPDIVO are the approved Immunotherapy treatments by the FDA for treating melanoma skin carcinoma.
-

Topic 25. CHOLERA RESURGENCE? SEVERAL COUNTRIES RECORD CASE SURGE, DEATHS SINCE OCTOBER

Important for subject: Science and Technology



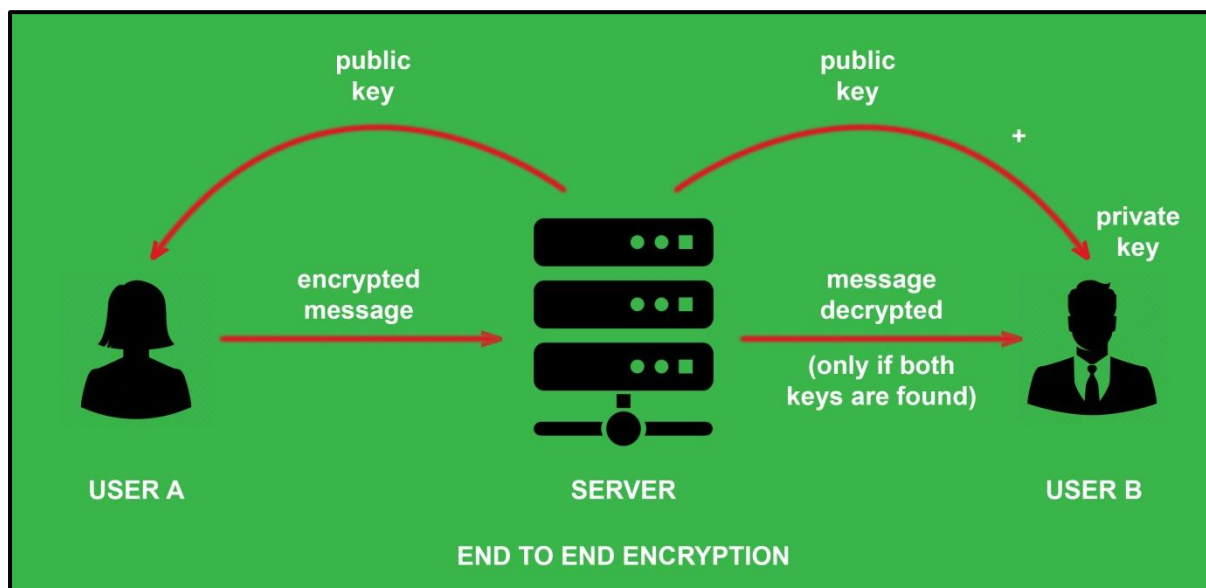
Many countries around the globe have reported an increase in cholera cases this past year, raising concern about a worldwide resurgence. These countries include the Philippines, Haiti, Haiti, Lebanon, and Malawi.

- This is because there are not enough cholera vaccines.
- Experts believe global warming may have increased the likelihood of the disease spreading. Additionally, the strain on healthcare facilities caused by COVID-19 may have led to a reduction in access to treatment and prevention.
- Cholera
- It is a potentially life-threatening, infectious disease that poses a public health risk.
- Cholera is an acute diarrheal disease caused by *Vibrio cholerae* bacteria infection in the intestine.
- Symptoms are usually mild to moderate, but can sometimes be serious.
- Symptoms:
 - Watery diarrhoea should be resorted to
 - Vomiting
 - Leg cramps

- Transmission:
- Cholera can be contracted by drinking unfiltered water or eating cholera-infected food.
- In areas that have poor treatment of sewage or drinking water, the disease can quickly spread.
- Vaccine:
- There are currently three WHO-pre-qualified oral cholera vaccinations (OCVs) Dukoral Shanchol and Euvichol-Plus.
- To be fully protected, all three vaccines must be administered in two doses.

Topic 26. END TO END ENCRYPTION

Important for subject: Science and Technology



Apple announced on December 7, 2022 that encryption will be implemented for the majority of data stored on iCloud by the early 2023.

- Apple has announced an increase in the number of data points that are protected by end-to-end encryption on iCloud, from 14 to 23 categories.
- According to the company, end-to-end encryption will protect user data even if data is lost in the cloud.
- Elon Musk, the CEO of Twitter, recently urged for encrypted Twitter directing messages (DMs).

- Many messaging services, such as Zoom, WhatsApp, and Facebook, use end-to-end encryption.
- However, many government agencies aren't happy about the latest development.

What is End-to-End Encryption?

- End-to-end encryption is a method to secure communication. It prevents third parties accessing data while it's being transferred from one device or end system.
- It stops third parties, such as cloud service providers, internet providers (ISPs), and cybercriminals, from accessing data that is being transferred.
- End-to-end encryption uses an algorithm that converts plain text to an unintelligible.
- Only individuals with the decryption keys can decode or read this format. They are kept only on the endpoints.
- End-to-end encryption is widely used for sending documents to corporate entities, financial information, and private conversations. It can also be used to control access authorizations to stored data.

Significance:

- End-to-end encryption can be used to protect instant messaging communications and passwords.
- It can also be used to protect data stored and to safeguard data on cloud storage.
- Targets of hacking attacks by well-funded organizations would benefit from an extra layer of protection.
- End-to-end encryption increases data security and prevents unauthorised access.
- End-to-end encryption can also be viewed as technology that protects user information from government spying.
- This makes it desirable by journalists, political opponents, and activists.

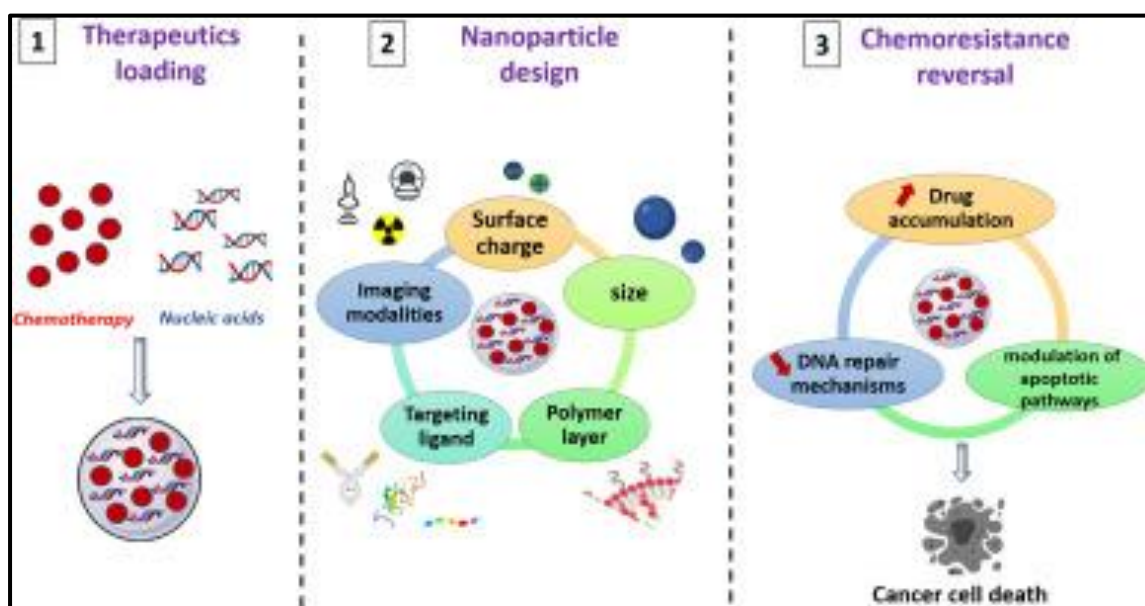
Government agencies standpoint:

- In the past, attempts by governments around the world to gain encrypted data stored and hosted by tech companies met with resistance.
- Terrorists and non-state elements can use encrypted messages to threaten the sovereignty and integrity of a nation.

- Australia, the U.S., and the U.K. planned to press Facebook to open a backdoor to its encrypted messaging apps in 2019 to allow governments access to private communications.
- Australia passed legislation in 2018 that required tech companies and service providers be able to develop capabilities to allow law enforcement secret access messages on platforms such as WhatsApp and Facebook.
- It is becoming more difficult to censor social media trolling, hate speech and child pornography.
- End to end encryption doesn't protect metadata. This includes information such as when a file was created and when it was sent. It also contains information about the end points between data that was shared.

Topic 27. DESIGNING NANOPARTICLES TO FIGHT CANCER CELLS

Important for subject: Science and Technology



Researchers from IIT-Jodhpur reported a breakthrough that involved the use of nanoparticles.

- This breakthrough represents a completely new method of treatment, and its technological underpinnings could be used to treat other diseases.
- Information about the process
- Like all cells, cancer cells die when they accumulate oxygen. Any molecule that contains oxygen is able to get into a cell and cause accumulation of oxygen.

- These oxygen-containing molecules, which can damage cells, are or reactive oxidative species (ROS), better known as 'free radicals'.
- ROS is a reactive oxygen that reacts with many chemicals in cells. This causes them to lose their functions and effectively kills them. This is known as oxidative Stress.
- The team created a unique type of nanomaterial called "upconversion nanoparticles", or UCNP. This cocktail contains rare metals.
- UCNP has the useful property that they can absorb light (get energised), and produce enough ROS to overwhelm the cancer cells' antioxidant defense mechanism.
- A particular feature in lung cancer cells called 'epidermal Growth Factor receptor', or EGFR, is what allows for entry into the cancer cell.
- These receptors act as an entry point to a cell.
- It's similar to the spike proteins of SARS CoV-2 viruses, which bind to the ACE2 receptor in human cells to allow them to enter.
- After UCNP has been inserted into cancer cells using anti-EGFR antibody, the UCNP is nourished by Infra Red light to produce large quantities of ROS. This creates oxidative damage in the cancer cells, which causes them to die.

Significance:

- The UCNP method is also useful in diagnosis. The nanoparticles can glow with IR light, making them a useful biomarker for identifying bad cells.
- This creates a new field of diagnosis, called "nano-theranostics".
- This treatment path could be extended to treat many other diseases.

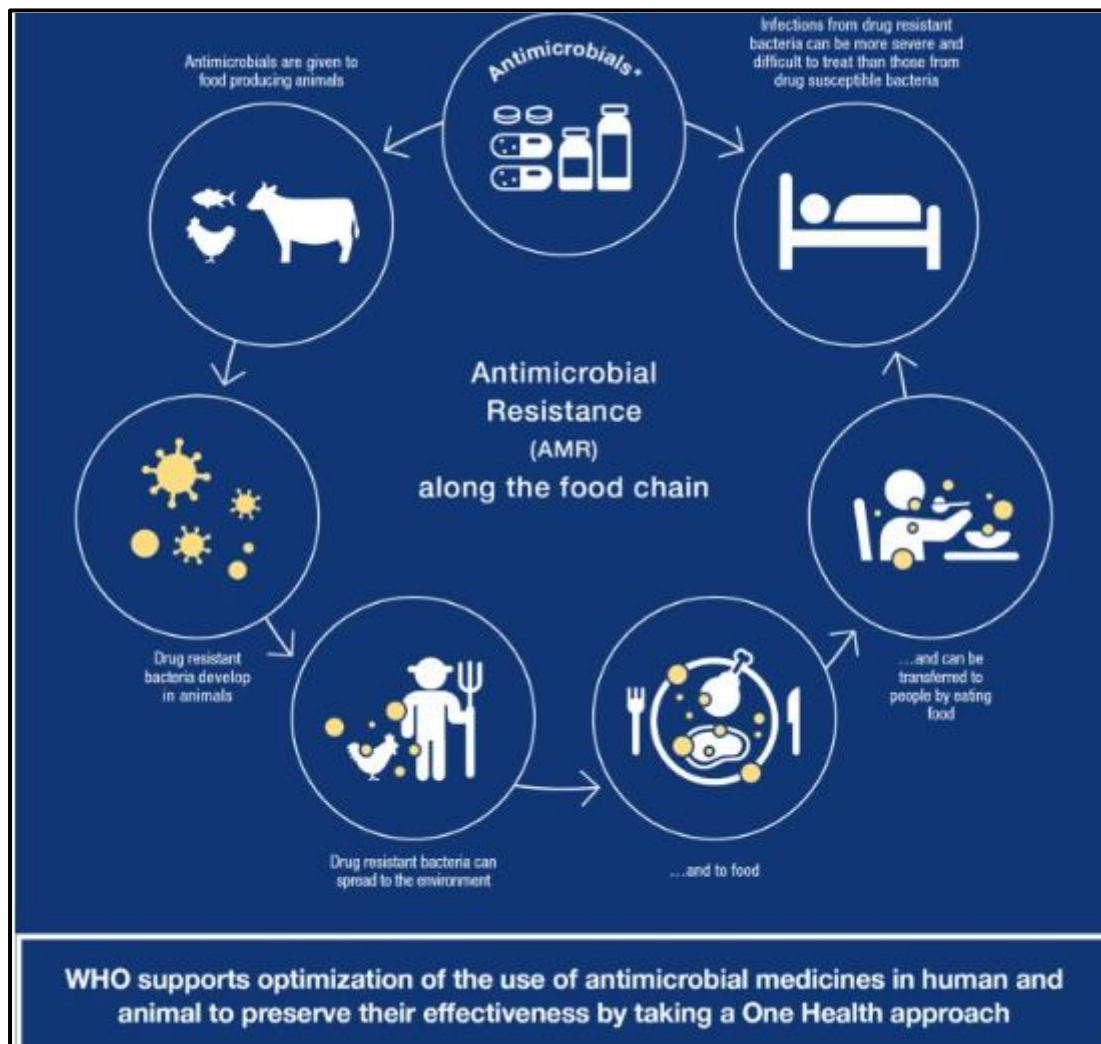
Up conversion nano particles:

- Up conversion nanoparticles are a class of unique optical nanomaterials doped in lanthanide ions. They feature a wealth of electronic transitions within their 4f electron shells.
- These nanoparticles are capable of converting two or more low-energy photons to one high-energy photon.
- The ability of upconversion nanoparticles, (UCNPs), to convert near-infrared radiations that have lower energy into visible radiations that have higher energy

through a nonlinear optical procedure.

Topic 28. ANTIMICROBIAL RESISTANCE (AMR)

Important for subject: Science and Technology



More than 50% of life-threatening bacteria infections are becoming resistant to treatment:

- WHO Report Global Antimicrobial Resistance and Use Surveillance Systems (GLASS). report
- Based on 2020 data from 87 countries.
- Published by- World Health Organisation (WHO).
- This report analyzes the antimicrobial resistance rates (AMR) and tracks trends in 27 countries, beginning in 2017.
- Report findings

- Klebsiella pneumoniae, Acinetobacter species spp. against carbapenems drugs have high levels of bacterial resistance.
- 60% of Neisseria gonorrhoea infections show resistance to Ciprofloxacin. This is one of the most commonly used oral antibacterials.
- Over 20% of E.coli strains, which are the most common cause of urinary tract infections, were resistant both to co-trimoxazole and ampicillin, first-line medications, and second-line fluoroquinolones.
- rates of bloodstream infections caused by resistant E.coli and Salmonella have increased by at most 15% over 2017.
- What is antimicrobial resistant (AMR),
- Antimicrobial resistance (AMR) refers to the ability of microbes to resist the effects previously used to treat them. It's also known as antibiotic resistant.
- Antimicrobial resistance is defined by the WHO as any microorganism that has developed resistance to an antimicrobial agent that was previously effective in treating an infection caused by that microorganism.
- Resistance to antimicrobials can be a natural biological phenomenon

Topic 29. BT BRINJAL BIOPIRACY CASE: APEX COURT RESTORES PIL IN KARNATAKA HC AFTER NEARLY A DECADE

Important for subject: Science and Technology

What's the problem?

In 2012, Environment Support Group, a non-profit working to integrate environmental and social justice into decision-making, filed a PIL at the Karnataka High Court.

- The PIL concerned the Bt Brinjal seed, created by the public-private partnership by illegally accessing six varieties indigenous brinjal seeds.
- The petition was then transferred to the National Green Tribunal by the high court.
- The apex court restored the petition to the high court almost a decade after ESG challenged it in the Supreme Court. ESG argued that the NGT was not authorized to examine petitions challenging constitutional validity.

What is Biopiracy?

- Biopiracy is the practice of commercially exploiting naturally-occurring biochemical or genetic material.
- This includes obtaining patents that limit its future use and failing to pay fair compensation for the community it comes from.

What has the government done?

- This decade saw 231 additional crops be removed from the protection against piracy under Section 3 of Biodiversity Act.
- The total now stands at 421.
- This would mean that these species/varieties of plants can be traded/exported to other countries without permission from authorities.
- This could lead to overexploitation.
- In a 2009 notification, the Ministry of Environment, Forest and Climate Change had designated 190 plants as Normally Traded Commodities.
- 15 of these plants were either 'threatened or critically endangered'.
- They will be less likely to survive if they are stripped of the protection offered by Section 3 and listed under section 40 of the Biodiversity Act.
- **Section 3 - Biological Diversity Act 2002 -**
- Some individuals are not allowed to engage in Biodiversity-related activities without approval from the National Biodiversity Authority.
- No one referred to under-section (2) may obtain any Indian biological resource or knowledge related thereto without the prior approval of National Biodiversity Authority.
- Persons who will need to obtain the approval from the National Biodiversity Authority pursuant to sub-section (1) include:
 - A person who is not a citizen or resident of India.
 - A citizen of India who is a non resident as defined in clause 30 of section 2 Income-tax Act 1961
 - A body corporate, association, or organization-
 - Not incorporated in India or registered there;
 - incorporated or registered in India under any law currently in force that has any non-Indian participation to its share capital and management.
- Section 40 in the act:

- The central government may declare, without regard to the contents of the act, that any item, including biological resources, which are normally traded as commodities, shall be exempted from the provisions.

How does the MoEF&CC determine which varieties should be removed under Section 3?

- The act doesn't describe any criteria or procedures for exempting crops under Section 3 and including them under Section 40.
- Only the act mentions that the EU government is able to make exceptions.

Consequences:

- These species could be extinct if they are traded unregulated.
- **Garcinia imberti Bourd** - An evergreen tree that is endemic to Agastyamala forests in the Western Ghats - was listed as endangered in 2012. It is now considered critically endangered.
- Chlorophytum borivilianum, a plant found in peninsular India, has been declared 'near threatened' and 'critically endangered'.

BT- Brinjal

- The Bt Brinjal was created by the University of Agricultural Sciences, (UAS).
- Dharwad in Karnataka and Tamil Nadu UAS. Maharashtra Hybrid Seeds Company, (Mahyco), Monsanto, together with Sathguru Management Consultants Private Ltd.
- It was developed by them accessing the germplasm from indigenous brinjal varieties malpur and majarigota as well as kudachi and udupi 112 GO and rabkavi - without the consent of the State Biodiversity Board, the local Biodiversity Management Committees and the National Biodiversity Authority.
- Bt Brinjal has been developed by inserting a gene cry1Ac from a soil bacterium called Bacillus thuringiensis through an Agrobacterium-mediated gene transfer.
- This genetically modified brinjal gives resistance against insects such as the Brinjal Fruit and Shoot Borer (Leucinodes orbonalis).
- After a fruit and shoot borer larva has eaten Bt brinjal plants as food, it injects the egg1Ac protein with plant tissue. It reacts to the alkaline present in the insect's gut

and binds it to certain receptor proteins in the membrane. It causes paralysis in the larvae and disrupts their digestive process.

Topic 30. TOILETS SPEW INVISIBLE AEROSOL PLUMES WITH EVERY FLUSH — HERE'S THE PROOF, CAPTURED BY HIGH-POWERED LASERS

Important for subject: Science and Technology

Every time you flush the toilet, tiny water droplets are released into the air.

- These droplets are called aerosol plumes and can spread disease from human waste.
- Respiratory diseases transmissible to aerosols (ATB)-
- Aerosol-transmissible diseases (ATDs), such as tuberculosis and measles, are transmitted by infectious particles or droplets through inhalation or direct contact with mucous membranes in the respiratory tract or eyes.
- ATDs that are transmitted via airborne routes are called airborne infectious disease (AirID).
- Aerosol particles that contain pathogens can be important vectors of human diseases.
- Inhalation of small particles suspended in the air can lead to respiratory diseases such as influenza and COVID-19.
- Larger particles can spread intestinal disease like norovirus by contact with the mouth and hands.
- **Probable solution**
- There are many ways to reduce the exposure of humans to toilet plumes.
- It is a good idea to seal the lid before flushing.
- This does not eliminate all aerosol plumes. Many toilets in healthcare, commercial, and public places do not have lids.
- UV disinfection system and Ventilation could be used to reduce aerosol plumes in the bathroom.

Topic 31. ISRO INKS MOU WITH SOCIAL ALPHA TO CREATE SPIN

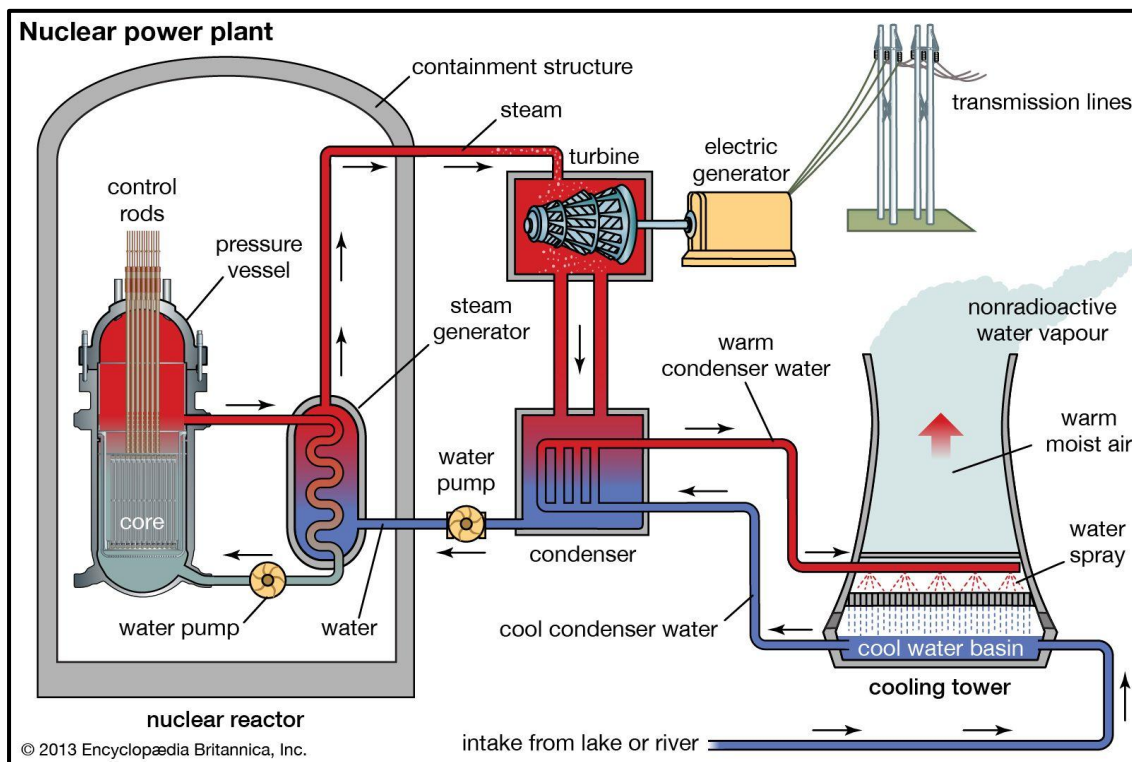
Important for subject: Science and Technology

ISRO signs MoU with Social Alpha in order to establish SpaceTech Innovation Network

- Social Alpha is a platform that enables science and technology start ups to innovate, curate and develop ventures.
- Through the power of entrepreneurship, market-creating innovation, it addresses the most pressing social, economic and environmental issues.
- Social Alpha was founded in 2016 and has since supported over 200 start-ups, including 60+ seed investments.
- SpaceTech Innovation Network
- SpIN India is India's first dedicated platform to foster innovation, curation and venture development in the space-entrepreneur ecosystem.
- SpIN will be primarily focused on three innovation categories that support space tech entrepreneurs:
 - Geospatial technologies and downstream applications
 - Enabling Technologies for Space & Mobility
 - Aerospace Materials, Sensors and Avionics.
- SpIN Launches Innovation Challenge
- In line with the announcement of partnership, SpIN launched its first innovation contest.
- Start-ups in the early stages of development are encouraged to apply. These solutions include maritime and land transport, urbanization and mapping, surveying, disaster management and food security.
- The selected innovators and start-ups will have access to both the infrastructure and resources of ISRO and Social Alpha.
- They will receive active support in key areas such as product design, validation infrastructure and intellectual property management, and other technical and business inputs.

Topic 32. OVER 9 GW OF NUCLEAR POWER CAPACITY IN WORKS

Important for subject: Science and technology



India will increase its nuclear power capacity by 9.4 gigawatts (GW), over the current installed capacity of around 6.7 GW. Projects of 8.7GW are currently under construction, and 700 megawatts later. Parliament was informed Wednesday.

- Current nuclear power capacity includes 22 reactors, with a total of 6,780MW.
- Information about Nuclear Energy
- The energy contained in the nucleus or core of an atom is called nuclear energy. The nucleus is made up of tiny units called atoms. Energy is what holds them together.
- An atom's dense nucleus contains a lot of energy. Officially, the "strong force" is the power that holds the nucleus together.
- Although nuclear energy can be used for electricity production, it must first be liberated from an atom. Atoms are broken up to release nuclear energy during nuclear fission.
- Worldwide Nuclear Energy Production
- Around 10% of the world's electricity comes from nuclear energy.
- Around 30 countries have nuclear power plants.

- Around 75% of electricity in France is generated by nuclear energy.
- There are approximately 450 nuclear reactors worldwide that generate electricity.
- Nuclear Energy in India
- India's nuclear program can be traced back to 1944. Its efforts at 3 stage technology were initiated by Homi Jehangir Bhag, who founded the Tata Institute of Fundamental Research.
- India currently has 23 nuclear reactors operating in 7 nuclear power stations, totalling 7,480 MW.
- The largest nuclear power station located in India is Kudankulam Nuclear Power Plant, which is situated in Tamil Nadu.

India's Nuclear Programme -

- In 1954, the Indian nuclear power program envisaged three stages of nuclear power generation using the country's uranium or thorium resources.
- Stage 1 - The Pressurized Heavy Water Reactor uses Natural UO₂ to fuel matrix and Heavy water to moderator/coolant.
- The reactor's first two plants were both boiling water reactors that were based on imported technology.
- Through indigenous R&D efforts, subsequent plants have been developed to be PHWR-type.
- India has achieved total self-reliance in this technology, and this stage is in the industrial domain.
- Future plans include the establishment of VVER Typee. Russian Version of the Pressurized Water Reactors (PWR) is in progress to augment power generation.
- MOX fuel (Mixed oxygen) was developed at Tarapur in order to conserve fuel and develop new fuel technology.
- Second Stage Nuclear Power Generation envisages the Use of Pu-239 from the first stage reactor operation as the fuel core for Fast Breeder Reactors (FBR).
- Third Phase of India's Nuclear Power Generation Programme is Breeder Reactors using U233 Fuel.
- India's huge thorium deposits allow for design and operation U233-fueled breeder reactors.
- Types Of Nuclear Reactors

- Pressurized Heavy Water Reactor
- PHWR is a nuclear reactor that uses unenriched natural uranium as its fuel.
- It uses heavywater (Deuterium oxide, D₂O) for its coolant/moderator.
- The heavy coolant is kept at pressure. This allows it to heat to higher temperatures without boiling.
- Although heavy water is more expensive than normal light water, it produces significantly enhanced neutron economy, which allows the reactor to run without fuel enrichment facilities.

Light Water Reactor

- The light water reactor is a type thermal– neutron reactor in which uses normal water instead of heavy water.
- It is powered by low-enriched uranium.
- It uses water both as a coolant and as a neutron moderator. It generates heat through controlled nuclear fission.
- Prototype Fast Breeder Reactor
- A breeder reactor is a reactor that produces more fissile material than it consumes .
- These devices are designed to increase the nuclear fuel supply in order to generate electric power.
- This is because breeder reactors have a high neutron economy that allows them to produce more fissile material than they use. To achieve this, they load fissile and fissile fuel into the reactor with irradiated fertile materials like Uranium-238, or Thium-232.
- PFBR is a 500-MW fast breeder nuclear reactor currently being built at the Madras Atomic Power Station (Tamil Nadu). It is currently being fuelled with Mixed Oxide (MOX).
- Nuclear Reactors In India
- Below is a list of Indian nuclear reactors that are currently installed.
- Rajasthan (Rawatbhata).
- Tamil Nadu (Kudankulam; Kalpakkam)
- Gujarat (Kakrapar)
- Uttar Pradesh (Narora)
- Karnataka (Kaiga)

- Maharashtra (Tarapur)
- Another five projects are in construction.

Topic 33. NO PLAN TO PRIVATIZE SINGARENI COLLIERIES COMPANY

Important for subject: Science and Technology

Pralhad Joshi, coal minister, stated Wednesday that there is no plan for Singareni Collieries Company to be privatized (SCCL)

- SCCL is a joint venture between Telangana government, the center and on a 51/49 equity basis.
- The government of Telangana holds 51 percent of the stakes, so it is impossible for the government to privatize SCCL.
- About Singareni Coal Mine
- Located 185km east of Hyderabad, in the Godavari Basin
- Four coal seams were identified
- 56.5 % Fixed Carbon
- It is not a coking coal but the Regional Research Laboratory at Hyderabad improves its quality.
- Coal Mines, Telangana and Andhra Pradesh
- About 9.72 percent of India's coal is produced in Andhra Pradesh.
- The majority of coal reserves can be found in the Godavari Valley, which is spread across the Adilabad and Karimnagar districts, Warangal. Khammam, East Godavari and West Godavari.
- The only two actual working collieries are Singareni or Kothagudem.
- Nearly all of the coal is non-coking.
- These coalfields are located in the south of India, and provide coal supply for most of South India.

Topic 34. OLDEST KNOWN DNA PAINTS A PICTURE OF A ONCE-LUSH ARCTIC WORLD

Important for subject: Science and Technology

Location-KapKobenhavn in Northern Greenland's permafrost, a region 600 miles from the

north pole.

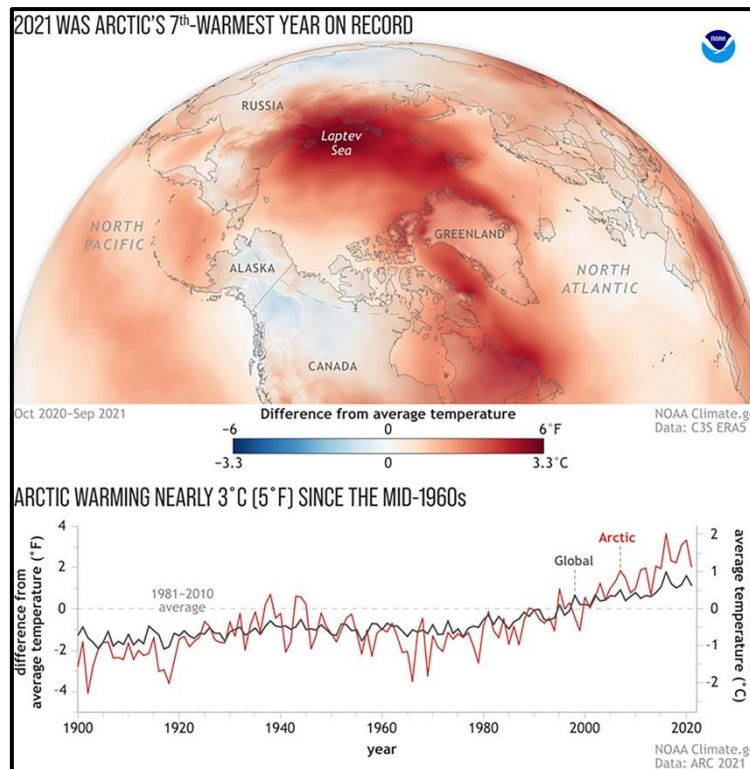
- Species Discovered- 135 species animal and plant species (120 species of plants, of which 75 are brand new). These include Mastodons, a tree species that is known to thrive in poplar or birch trees.), geese and lemmings as well as ants, caribous, Arctic hares (horseshoe crabs), corals, and algae.
- Geological time scale- The genetic materials found in Greenland are estimated to be two-million-year-old. The oldest known DNA from a Siberian mammoth is twice as old, at 1.2 million years.

What does this discovery mean?

- The presence of mastodons indicates that once there was a forest of poplar or birch trees in the area.
- The presence of Caribou indicates the presence warm coastal water in that region.
- The sediment contained layers that revealed that the Earth's magnet field had been flipped.
- Significance and significance of the discovery
- To understand the evolution of these species.
- The development and understanding of a new method for DNA extraction and their analysis.
- Understanding how species adapt to their environment.

Topic 35. AS EARTH HEATS UP; ARCTIC FACES DISPROPORTIONATE IMPACT: NOAA

Important for subject: Environment



Once frigid and frozen, the Arctic is now wetter, stormier and more unpredictable. This shift in climate and seasons is forcing communities, wildlife, and ecosystems to adapt.

- 2022, the Arctic's sixth-warmest year ever recorded, researchers found many new signs this year that the region is changing.
- Signs that the climate is changing in the Arctic region:
- Greenland's September heat wave caused excessive ice melting
- It rained for the first-time after the August heatwave 2021.
- The Arctic Circle has seen temperatures rise much faster than the rest of the world.
- The sea level rises worldwide when the arctic warms.
- There could be three main factors that are increasing precipitation in the Arctic.
- More moisture can be retained in warmer air.
- Storms can absorb more ocean water as sea ice melts.

- The Arctic is being fed more energy by storms that pass over warmer waters.

NOAA Arctic report card:

- National Oceanic and Atmospheric Administration produces this report every year since 2006.
- Chicago produced this year's report.
- According to the report: The rising temperatures have helped plants and shrubs grow in Arctic tundra parts, and 2022 saw the fourth highest levels of green vegetation since 2000, especially in the Canadian Arctic Archipelago and northern Quebec, as well as the central Siberia.
- **Arctic amplification**
- Three factors may explain the Arctic's extreme heating, also known as Arctic amplification or polar amplification.
- One, the region's reflectivity or albedo is changing with the world warming.
- When the Arctic sea ice melts, it will expose the darker ocean surface which will absorb more heat from the sun.
- This is in line with the second factor changing currents.
- Ocean currents usually bring in warmer water out of the Pacific and colder water out of the Arctic into Atlantic.
- These currents could be changing as more melting ice injects the Arctic Ocean with freshwater.
- This is less dense than saltwater and floats above it.
- The missing ice exposes the surface waters to more winds, speeding the
- Beaufort Gyre is located in the Arctic and traps water that it would normally expel into Atlantic.
- This acceleration mixes colder freshwater below with warmer saltwater above, raising the surface temperatures and further melting the ice.
- The weather is influenced by the ocean currents, which is a third factor.
- They are the driving force behind the powerful polar stream, which moves cold and hot air masses throughout the Northern Hemisphere.
- This is due to temperature differences between the Arctic tropics and the Arctic.
- However, as the Arctic heats, the jetstream now oscillates wildly north-south.

- This was injecting warm air into the Arctic in the summer and the US with very cold air in winter like the "polar vortex", January 2019.

Topic 36. COP15 MONTREAL: '30×30 WILL CREATE MORE MILITARISED PROTECTED AREAS'

Important for subject: Environment

To avoid a crisis, the 15th Conference of the Parties to the Convention on Biological Diversity Montreal, is pushing a Target of protecting and conserving at least 30% of land and ocean biodiversity by 2030.

- **Target 30X30**
- GBF is the agreement that pledges to protect 30% of the earth's oceans and land by 2030. This is commonly known as the 30X30 goal.
- The 30X30 target first appeared in 2019, and was part of an article, A Global Deal for Nature:
- Science Advances publishes guidelines, milestones and targets.
- This became the global call for the High Ambition Coalition for Nature and People, which was launched in 2020. As of October 2022 more than 100 countries were part of it.
- Under this goal, countries must commit to protecting 30% of the land and sea by 2030.
- **Concerns about the target**
- In the name of conservation, it will expel around 300 million native people from their lands and forests.
- Local communities and indigenous peoples will be denied access to protected areas once they are notified.
- Wildlife loss has not been decreased despite the fact that 15-16% of all world areas have been declared protected.
- The Target 3 (GBF) , which talks about 30x30 does not address indigenous territories and rights.
- Other area-based conservation measures that are effective (OECMs) -
- An OECM can be defined as:
- An geographically defined area, that is managed and managed to achieve long-term

positive outcomes for in-situ biodiversity conservation, as well as ecosystem functions and services, and, where appropriate, cultural, spiritual and other local values.

- The World Database on OECMs invites governments, relevant organisations, Indigenous peoples, and local communities to provide voluntary guidance on OECMs in order to identify, recognize, support, and report data on OECMs.
- Concerns versus OECM
- OECMs are going to undermine India's Scheduled Tribes and Other Traditional Forest Dwellers Act, 2006 (FRA).
- FRA does not require people from forest-dwelling and tribal communities to demonstrate how they have protected the forests in order to claim ancestral lands.
- The indigenous communities must demonstrate, by a long and complex process, that they can protect biodiversity.

37. EQUITABLE BENEFIT SHARING OF DIGITISED GENETIC INFORMATION TO SPAN ACROSS DISCUSSIONS AT COP15

Important for subject: Environment



From CoP15 to CBD

- The UN Biodiversity Conference (COP15) in Montreal, Canada will be dominated by issues of accessibility and benefit-sharing based on digital sequence data on genetic

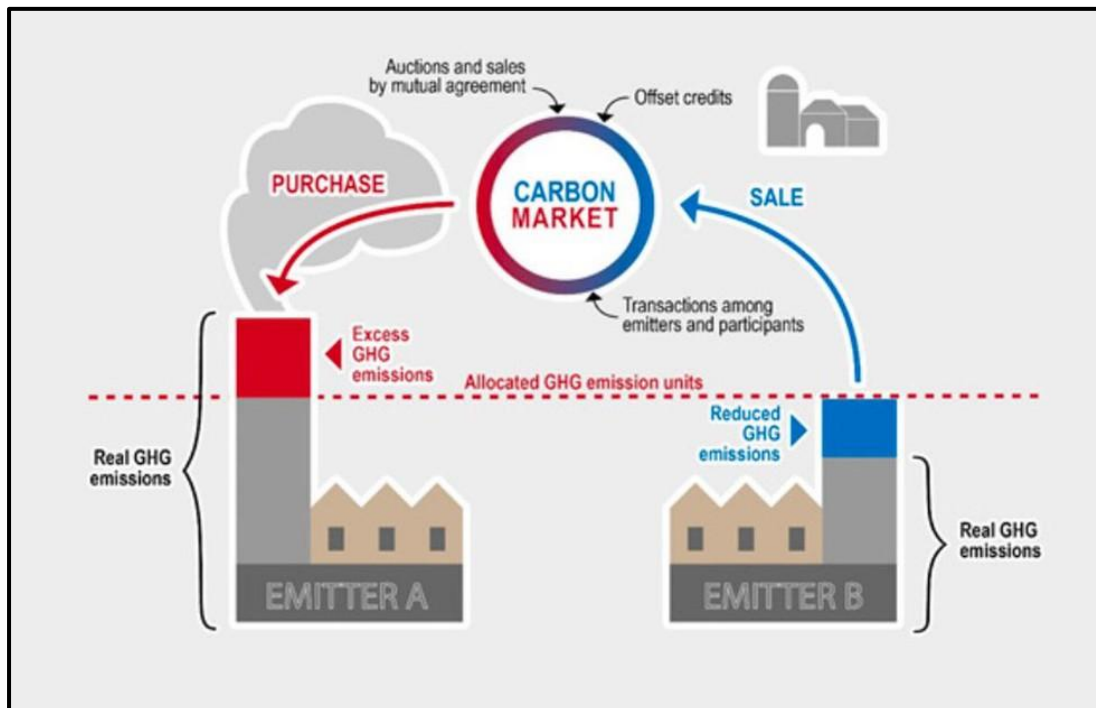
sources (DSI).

- The latest issue of DSI on genetic resource
- The negotiations are complicated by ambiguity in the definition and challenges in the tracking of the country of origin for DSI via digital databases. There are also concerns about losing open access to DSI data. Divergent views on multilateral and bilateral options for benefit-sharing from DSI.
- Pre-COP15 Open Ended Working Group (OEWG-5) meetings made little progress on DSI.
- However, a refined, more bracketed draft of the GBF was presented at the meetings. This will be the basis for final COP15 negotiations.
- Digital Sequence Information on Genetic Resources
- Digital sequence information (DSI), a term that is used in certain international policy forums, notably the Convention on Biological Diversity to describe data derived from genetic resources, is a term that can be used.
- DSI refers to data derived from DNA or RNA that can be stored digitally.
- The term includes nucleic acids sequence data. However, it can also be used to refer to other data types that are derived from genetic resources or linked to them, such as protein sequence data.
- This term's exact scope is a matter of on-going policy discussions.
- DSI is essential for research in a variety of contexts including public health and medicine, biology, plant and animal breeding, evolution research, and medicine.
- The Nagoya Protocol is a component of the Convention on Biological Diversity . allows countries to regulate and share in the benefits derived from their genetic resources. This can be done by arranging access and benefit sharing agreements with other users.
- Challenges:
- However, academic researchers generally share DSI online and freely following a set principles that are compatible with the open science movement.
- Open sharing is recognized as having broad benefits and open science has become a major focus of international science policy.
- This could be interpreted as a conflict with benefit sharing obligations. Individuals can access and use the open data without having to enter into benefit-sharing agreements.

- The Convention on Biological Diversity Parties are currently considering a variety of policy options to strike a different balance between these two important international goals.

Topic 38. BILL TO SET UP CARBON CREDIT TRADING PASSED

Important for subject: Environment



The Energy Conservation Amendment (Amendment Bill) Bill, 2022 was passed by the Rajya Sabha. The amendment was passed by the Lok Sabha in August 2022.

- What is Energy Conservation Amendment Bill, 2022?
- To facilitate the attainment of COP-26 goals, the Bill amends the 2001 Act.
- To accelerate decarbonisation, introduce concepts such mandatory use of non-fossil resources and credit trading to ensure a faster pace.

What are some key features of a bill?

- **Carbon credit trading:** This Bill gives the authority to the central government for a carbon credit trading program.
- A carbon credit is a tradable permit that allows you to produce a specific amount of carbon dioxide, or other greenhouse gases.

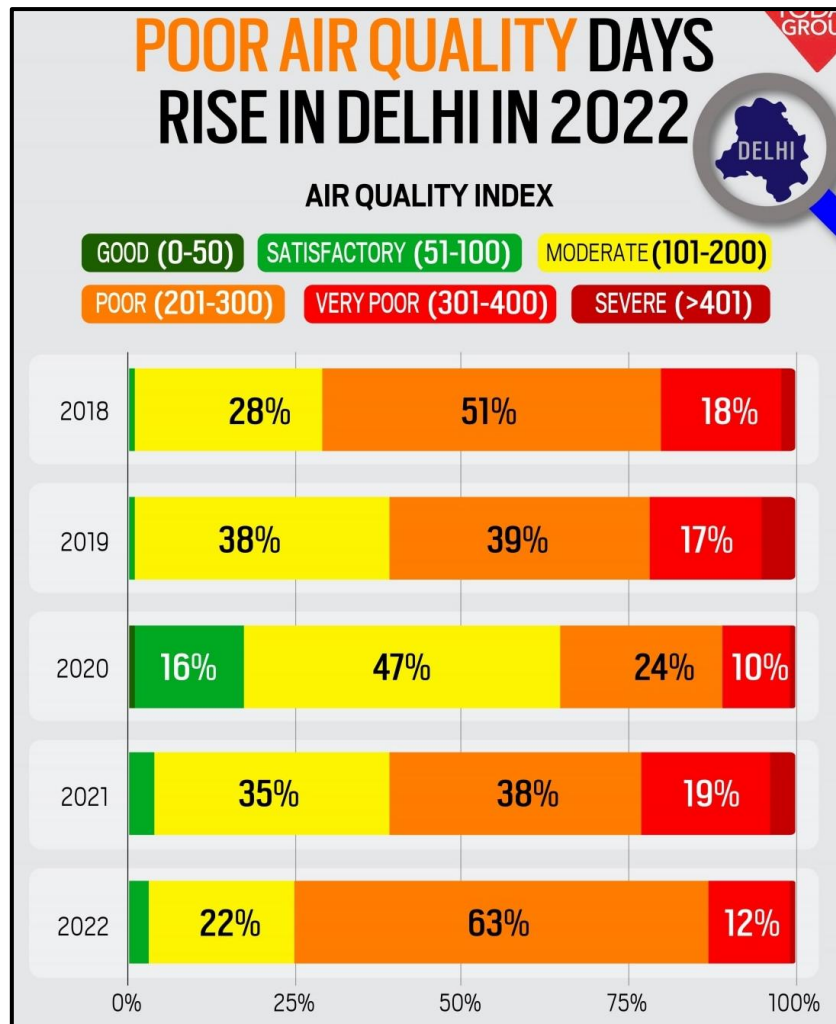
- **Obligation not to use fossil energy sources:** The Act enables the central government to set energy consumption standards for consumers that are required to consume a minimum amount of non-fossil energy are.
- Industries include mining, steel and cement, textile, chemicals, as well as petrochemicals, Transport sector, including Railways, Commercial Buildings, as described in the schedule.
- **Energy conservation code Buildings:** This bill gives the central government the power to set standards for energy efficiency, conservation, use renewable energy, and other requirements for green building the energy conservation code for commercial buildings is subject to the Act.
- Added after the Notification of the Code.
- A minimum connected load of 100 kilowatts (kW) or a contract load of 120 Kilovolt Amperes (kVA).
- **Standards for vessels and vehicles:** The bill allows for energy consumption standards to be for appliances and equipment that consume, generate, transmit or supply energy. The Bill extends the definition of vehicles to include both motor vehicles and other vessels such as boats and ships.
- **Composition of the governing board of BEE:** This Act allows for the establishment of the Bureau of Energy Efficiency (BEE). The Bill proposes to increase membership of the BEE by 20-26 to 31-30.

What is Bureau of Energy Efficiency?

- Under the provisions of the Energy Conservation Act 2001, the Government of India established the Bureau of Energy Efficiency (BEE).
- BEE's objective is to reduce the Indian economy's energy intensity.
- BEE coordinates to designated consumers, designated agents, and other organisations and recognizes and identifies existing resources and infrastructure in order to perform the functions it was given under the Energy Conservation Act.
- BEE is now under Ministry of Power

Topic 39. CSE ANALYSIS FINDS DELHI-NCR WINTER POLLUTION LEVELS DOWN IN OCTOBER-NOVEMBER

Important for subject: Environment



According to the Centre for Science and Environment, a Delhi-based non-profit, the first phase of this winter's winter in the Delhi National Capital Region (NCR) showed early signs of improvement in airquality.

- The average level of fine particulate material (PM) dropped to 142microgrammes/cubic metre (ug/m3) for October and November. This is the lowest recorded level since 2018.
- The fine particulate levels of the national capital were 15% and 18% lower than October-November 2018, respectively, based on a citywide average from 37 Continuous Ambient Quality Monitoring Stations CAAQM and 10 older stations.

- Delhi was NCR's most polluted major urban area, with an average October-November level of 142 ug/m³. Gurugram had 134 ug/m³ while Ghaziabad had 131.
- This year, the total number of stubble fires in farms reported from Delhi, Haryana, and Punjab was 37% and 42% lower than that of October-November 2021.
- Information about the Commission for Air Quality Management, (CAQM),
- In October 2020, an ordinance created the Commission.
- To make way for the Commission, the Environment Pollution Prevention and Control Authority or EPCA was disbanded.
- The Commission is a statutory body.
- The Commission will replace the state and central pollution control boards in Delhi, Punjab Haryana, UP, and Rajasthan.
- The Parliament approved the Commission for Air Quality Management in National Capital Region (and Adjoining Areas) Bill in 2021.

Composition:

- Chairperson To be presided over by a government official with the rank of Secretary/Chief Secretary.
- The post of chairperson will be held for three years, or until the person reaches the age 70.
- It will include representatives from stakeholder States as well as members from various Ministries.
- It will include experts from the Central Pollution Control Board, Indian.
- Space Research Organisation (ISRO), and Civil Society.
- Functions and powers:
- It will be able to issue directives to the state governments regarding issues related to air pollution.
- It will accept any complaints it considers necessary to protect and improve the quality of the air in NCR and adjacent areas.
- It will also establish parameters to control air pollution.
- It will be responsible for identifying violators, monitoring industries and factories, as well as any other polluting units in the region. They will also have the power to close down such units.
- It will also be able to overrule any directives from the regional state governments,

which may violate pollution norms.

Topic 40. APPLY PRECAUTIONARY PRINCIPLE TO BIOTECHNOLOGIES,
SCIENTISTS & POLICYMAKERS URGE AT COP15 MONTREAL

Important for subject: Environment

At the 15th Conference of Parties to the United Nations Convention on Biological Diversity (CBD), Montreal, Canada, a white paper was published that highlighted the dangers of genetically-engineered trees and biotechnologies.

- Title-Biotechnology to Forest Health
- This paper outlined the damage genetically engineered trees could cause if they are allowed to grow wild. It was written as part of a conservation effort to preserve biodiversity.
- Forest certification programs Forest Stewardship Council (FSC) and Sustainable Forestry Initiative (SFI) have both banned genetically engineered trees.
- Convention on Biological Diversity (CBD),
- The original event was to have taken place in Kunming (China), in Oct 2020. However, it was delayed by the covid-19 pandemic.
- This event is currently taking place in Montreal Canada.
- Theme - Building a shared future of all life on Earth

Goal:

- Negotiating the biodiversity targets for this decade and a global framework to protect biodiversity.
- It is expected that the focus will be on 30x30 and a push for 30% land and sea protection for nature by this decade.
- The Human Right to a Healthy Environment is Underlined.
- As a measure of the impact and dependence on biodiversity, push to require mandatory Nature Disclosures from large financial institutions and businesses.
- Genetically Engineered American Chestnut (GE AC).
- The tree species was once the dominant one in eastern North American forests. It was decimated by *Cryphonectria parasitica* (also known as chestnut blight), and logging in

the second half of the 20th Century.

- Researchers are working to obtain government approval to release GE AC wild.
- If it is successful, it will be the first GE forest tree type specifically planted to spread freely throughout forests.
- The GE AC Tree was engineered using an oxalate oxidase enzyme or OxO, derived from wheat,, and other promoter and marker genes.
- The OxO trait doesn't eliminate the pathogen, but it prevents it spreading to the tree, making it less deadly.

Repercussions:

- There are direct and indirect financial connections between organizations that promote GE trees, and The American Chestnut Foundation.
- It can be used by the public to encourage the use of biotechnology in forest conservation, and pave the way to other GE trees.
- Pollinator population at risk
- Even in common crops, genetic engineering pathogen resistance has been unsuccessful. Plant defences are unable to stop pathogens from evolving, so increasing resistance to one may result in increased susceptibility to other pathogens.
- The problem of invasive species could increase.
- Use caution when handling GE Species
- A well-managed biosafety protocol can help to ensure that the Genetically engineered species is protected and transboundary movements are not disrupted.

Measures should read:

- The chosen level of protection is proportional.
- They are nondiscriminatory in the way they are applied.
- In keeping with similar actions already taken, Based on an analysis of the possible benefits and costs of taking action or not, It is important to be reviewed in light of new scientific evidence.
- capable of assuming responsibility for the production of scientific evidence that is necessary to conduct a more thorough risk assessment.

Topic 41. AVOIDING CLIMATE BREAKDOWN DEPENDS ON PROTECTING EARTH'S BIODIVERSITY — CAN THE COP15 SUMMIT DELIVER?

Important for subject: Environment

Convention on Biological Diversity (CBD),

- The original event was to have taken place in Kunming (China), in Oct 2020. However, it was delayed by the covid-19 pandemic.
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- Theme - Building a shared future of all life on Earth

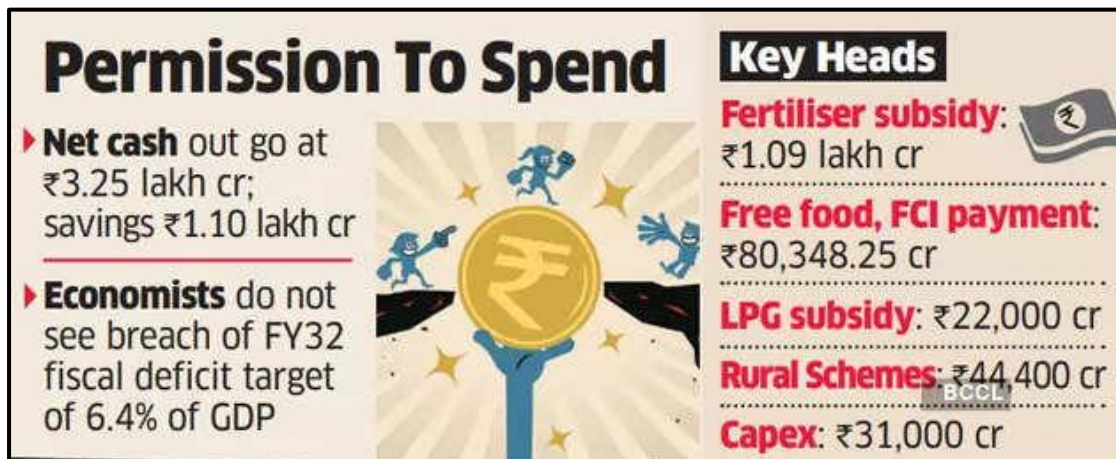
Goal:

- Negotiating the biodiversity targets for this decade and a global framework to protect biodiversity.
- It is expected that the focus will be on 30x30 and a push for 30% land and sea protection for nature by this decade.
- The Human Right to a Healthy Environment is Underlined.
- As a measure of the impact and dependence on biodiversity, push to require mandatory Nature Disclosures from large financial institutions and businesses.
- Target 30X30
- The 30X30 target first appeared in 2019, and was part of an article called A Global Deal for Nature:
- Science Advances publishes guidelines, milestones and targets.
- This became the global call for the High Ambition Coalition for Nature and People, which was launched in 2020. As of October 2022 more than 100 countries were part of it.
- Under this goal, countries must commit to protecting 30% of land and sea by 2030.
- New Zealand's biodiversity records-
- Te Mana o te Taiao is New Zealand's ambitious biodiversity plan. It sets out a blueprint to protect and restore biodiversity as well as ensure its sustainable use. However, New Zealand's native biodiversity is still at risk despite all the ambition.
- Concerning 30x30: More than a third Aotearoa's land area (Aotearoa, which is the

current Maori-language title for New Zealand) is under legal protection.

Topic 42. GOVT SEEKS PARLIAMENT NOD FOR ADDITIONAL GRANT OF ₹3.25-LAKH CRORE THIS FISCAL

Important for subject: Polity



Article 112: Supplementary, additional, or excessive grants.

- Supplementary grants are the additional grant required for the government's required expenditures.
- When grants are not authorized by the Parliament, an estimate of Supplementary or Additional grants is presented to the Parliament.
- These grants are presented to the Parliament and approved by them before the end of each financial year.
- If actual expenditure exceeds approved grants of Parliament, Ministry of Finance or Ministry of Railways present a Demand For Excess Grant.
- These excesses were brought to the attention of Parliament by the Auditor General of India and the Comptroller of India.
- These excesses are examined by the Public Accounts Committee, which makes recommendations to Parliament. After the actual expenses have been incurred, the Demand for Excess Grants will be presented to Parliament at the end of each financial year.

Other grants:

- **Additional Grant:** It's granted when there is a need during the current financial years for additional or supplementary expenditures upon a new service that was not included in the Budget.
- **Excess Grant** It is given when money spent on any service in a financial year exceeds the amount that was granted. Excess grants can only be requested after the actual expenditure has been made and the financial year it relates has ended.
- **Exceptional Grants.** It is granted to an extraordinary purpose that does not form part of any current service in any financial year.
- **Token Grant** When funds are available to cover expenditures on a new service, a request for a grant of a token amount may be submitted to vote by the House. If the House agrees to the request, the funds may then be made available.

Topic 43. MULTI-STATE COOPERATIVE SOCIETIES ACT AMENDMENT BILL **INTRODUCED IN LOK SABHA**

Important for subject: Polity

The Bill proposes to amend the Multi-State Co-operative Societies Act 2002 in view of the 97th Constitutional Amendment Act of 2011, which inserted Part IXB into the Constitution.

- **The bill's key highlights:**
- **Cooperative electoral authority** The Bill also seeks the establishment of a "cooperative electoral authority" to implement "electoral reforms in the cooperative sector."
- The proposed amendment will make it clear that the Centre can appoint a chairperson, vice chairperson and up to three other members as the authority.
- **Concurrent audit:** This Bill proposes to add a new Section relating to the "establishment and operation of the Cooperative Rehabilitation, Reconstruction and Development Fund" to revive "sick multi-state cooperative society".
- It proposes to add Section relating to "concurrent auditor" for multi-state societies that have a greater annual turnover or deposit than the Centre's amount.
- **Complaints and redress:** Government has proposed to add a Chapter about "complaints and redress".
- This proposal proposes to appoint one (or more) "cooperative ombudsmen" with a

territorial jurisdiction to investigate member complaints.

- Role for the Ombudsman The ombudsman will conduct the inquiry and decide within three months of receiving the complaint.
- He may also issue any directions necessary to the society during the inquiry.
- **Monetary sanctions and imprisonment** - The government also proposes to amend the Act to increase the monetary penalties for multi-state cooperative societies that violate the law's provisions to Rs 1 lakh.
- In the amendments, the imprisonment term was also proposed to increase from six months to one year.
- **Cooperative Information officer:** The Centre also proposes to create provisions for the "appointment and management of multi-state cooperative information society" which will provide information to members about affairs and management.
- Information about co-operative societies
- A co-operative society can be described as a voluntary association made up of people with common interests who work together to achieve common economic goals.
- Its purpose is to serve the interests of the poorer parts of society by promoting self-help and mutual aid.
- **Multi State cooperatives:** Multistate cooperatives are those societies that operate in more than one state. For example, a farmer producer organisation that procures grain from farmers from multiple States.
- The Board of Directors, which is comprised of all States in which these collectives are active, is responsible for all financial and administrative decisions.
- There are approximately 1,500 MSCSs in India. Maharashtra has the highest number.
- What is Concurrent List and Cooperative Society?
- A state is the item "cooperative societies" and falls under the Second schedule meaning that states have the right to make laws on and related subjects.
- 97th Constitutional Amendment Act 2011.
- It made the right to create cooperative societies a fundamental human right (Article 19).
- It also included an amendment to Article 43-B, a Directive Principle of State Policy on the Promotion of Cooperative Societies.
- It also added a new Part IX-B (titled "The Co-operative Societies") to the Constitution (Articles 234-ZH to 234-ZT).

- It allows the Parliament to create relevant laws for multi-state cooperative society (MSCS) as well as state legislatures for other cooperative societies.
- Ministry of Cooperation
- In 2021, the Union Ministry of Cooperation was established. Previously, it was managed by the Ministry of Agriculture.

Topic 44. VIOLATION OF REPRESENTATION OF PEOPLES ACT 1951

Important for subject: Polity

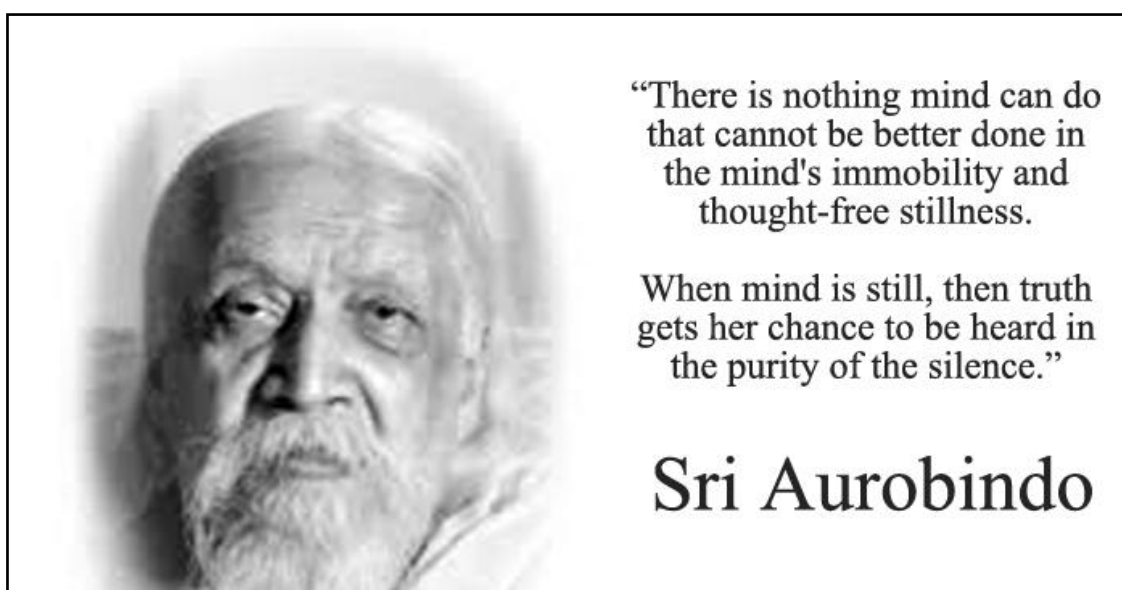
The party announced that a five-member TMC parliamentary delegation would visit the Election Commission of India Monday to raise allegations of violation of the Representation of the People's Act regarding Saket Gokhale, party spokesperson, according to the party.

- **Information about the Issue**
- TMC has claimed that Gokhale was charged by the Representation of the People Act 1951, which relates to promoting hatred between classes in connection to an election.
- Gokhale was arrested for a tweet about the prime minister's visit in Morbi following a collapse of a bridge there. The Press Information Bureau then issued a fact check, declaring the information fake.
- Section 125 - Promoting mutual understanding between classes in relation to election
- Anyone who promotes or attempts hatred between Indian citizens on the basis of religion, caste or race shall be punished by imprisonment for up to three years or both.
- Section 125 refers to corrupt practices as mentioned in 1951's Representation of people Act.
- **Other Corrupt Practices:**
- Section 122- Corrupt Practices
- Corrupt practices can be applied to any government official or non-governmental official.
- Bribery is any gift, offer, promise or gratification that you give to someone as a reward or motive.
- Undue Influence is any direct or indirect interference/attempt of interference on the part candidate with the exercise of any electoral rights.
- A candidate may publish any false statement of facts in relation to any candidate's personal character/conduct

- A candidate for any elector may hire or procure any vehicle to transport them to or from any polling station.
- Section 126 of the 1951 RPA
- Prohibition of public meetings within 48 hours of the end of the hour set for the close of the poll.
- Section 126 is non-applicable to print media, news portals, and social media. Section 126A prohibits exit polling and dissemination of results for the specified period.

Topic 45. SRI AUROBINDO

Important for subject: Modern India



Shri Narendra Modi, Prime Minister addressed a program celebrating Sri Aurobindo's 150th birthday via video conferencing today, Kamban Kalai Sangam in Puducherry, under Azadi ka Amrit Mahotsav. In honour of Sri Aurobindo, the Prime Minister released a commemorative coin as well as a postal stamp.

- He was an Indian social and spiritual philosopher, yoga teacher, maharishi and poet.
- He was also a journalist and edited newspapers like BandeMataram.
- Aurobindo studied at King's College in Cambridge, England, for the Indian Civil Service.
- He returned to India and took up civil service work under the Maharaja Princely State of Baroda.
- He became more involved in nationalist politics with the Indian National Congress,

- and the emerging revolutionary movement in Bengal through the Anushilan Saiti.
- He held several administrative positions in Calcutta (Kolkata) and Baroda, Vadodara (Vadodara), between 1892 and 1893.
 - In the wake of several bombings that were linked to his group, he was taken into custody.
 - He was facing treason charges for Alipore Conspiracy.
 - He had many spiritual and mystical experiences while in jail. After that, he moved to Pondicherry where he left politics to pursue spiritual work.
 - At Pondicherry, Sri Aurobindo developed a spiritual practice he called Integral Yoga.
 - He believed in a spiritual realization that freed and transformed human nature, thus enabling a divine existence on Earth.
 - With the support of Mirra Alfa, his spiritual collaborator (referred to as "The Mother") Sri Aurobindo Ashram were founded in 1926.
 - His most important literary works include The Living Divine which discusses the philosophical side of Integral Yoga.
 - Synthesis Of Yoga, which focuses on the principles and methods Integral Yoga.
 - **Savitri:** An Epic Poem and a Legend.
 - Bhagavad Gita & Its Message
 - The Future Evolution of Man
 - Rebirth and Karma
 - Hours of God
 - AurobindoGhose was conceived in Calcutta, 15 August 1872.
 - He was a seer, yogi and poet.
 - He was buried in Pondicherry on the 5th of December 1950.
 - Indian Revolutionary Movement
 - Aurobindo studied at King's College in Cambridge, England, for the Indian Civil Service.
 - He returned to India and took up civil service work under the Maharaja Princely State of Baroda.
 - He became more involved in nationalist politics with the Indian National Congress, and the emerging revolutionary movement in Bengal through the Anushilan Saiti.
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- In the wake of several bombings that were linked to his group, he was taken into custody. He was facing treason charges for Alipore Conspiracy.
- Religion & Spirituality:
- At Pondicherry, Sri Aurobindo developed a spiritual practice he called Integral Yoga.
- Sri Aurobindo was founded in 1926 with the support of Mirra Alfassa, his spiritual collaborator (also known as "The Mother")
- He believed that terrestrial evolution would lead to the realization of the fundamental principles of matter, life and mind.
- The principle of supermind, which acts as an intermediary power between the two spheres, was his belief.

Literary Works:

- A British newspaper called Bande Mataram, published in 1905
- The Life Divine
- Synthesis Of Yoga
- Savitri - A Legend and a Sign
- Bhagavad Gita & Its Message
- The Future Evolution of Man
- Rebirth and Karma
- Hours of God

Topic 46. KOCHI-MUZIRIS BIENNALE

Important for subject: History

The Kochi–Muziris Biennale's fifth edition opened displaying works by more than 90 artists from around the world in diverse media.

- What is art Biennales?
- Biennale is an large-scale showcase of art that occurs every two years at one site, and centered on a curatorial theme.
- The 2022 theme is "In Our Views Flow Ink & Fire".
- The Venice Biennale is one of the most important and oldest biennales around the globe. It was created by a resolution passed by the city council in 1893 to celebrate

national artistic talent.

- Its popularity grew and there was the rise of Biennales around the world. In 1951, Bienal de Sao Paulo was established as the first non-European biennial.
- 2009 saw the creation of a global Biennale Foundation. This foundation was created to facilitate dialogue, networking and knowledge sharing between contemporary art biennials all over the globe.
- More about Kochi-Muziris Biennale:
- In 2011, the Kochi Muziris Biennale, which is based in Mumbai, was started by Riyas Komu and Bose Krishnamachari, both Kerala-born artists.
- Its goal is to establish a platform to bring contemporary, global visual arts theory and practice to India.
- It is the largest South Asian event of its kind and is hosted by the Kochi Biennale Foundation in Kochi, Kerala.
- The Foundation is a charitable trust that promotes art, culture, and education in India.
- It works all year to strengthen India's contemporary art infrastructure, and to increase public access to Indian art through a variety of programs.
- The 2022 edition of the Kochi-Muziris Biennale will feature the work of more than 90 artists from all over the globe in different media.
- It was curated in Singapore by Shubigi Raho, an Indian-origin artist.
- This event's central theme is "In Our Views Flow Ink & Fire".
- This four-month-long event will be held in multiple locations in Kochi

Topic 47. RARE DISEASES (NPRD)

Important for subject: Government schemes



Concerns about the National Policy of Rare Diseases not reaching patients with rare diseases

were recently raised in Parliament during question time About National Policy of Rare Diseases

- In March 2021, the National Policy of Rare Diseases was notified.
- Aim:
- To place greater emphasis on local research and production of medicines.
- To reduce the cost of treatment for rare diseases.
- It is important to detect rare diseases in the early stages of their development. This will help prevent them from becoming serious.
- Categorization:
- **This policy categorizes rare diseases in three groups.**
- **Group 1 :** These disorders can be treated with a one-time curative procedure.
- **Group 2:** For those who require long-term or continuous treatment.
- **Group 3 :** These are diseases for which definitive treatment has been found. However, it is difficult to choose the best patient for both benefit and cost.

Financial Support:

- Provision for financial assistance of up to Rs. Patients with any Rare Diseases will be eligible for 50 lakhs.
- This is in addition to the Umbrella Scheme of Rashtriya Arogya Nidhi.
- **Rashtriya Arogya Nidhi:** The Scheme provides financial assistance to patients, living below the poverty line (BPL) and who are suffering from major life-threatening diseases, to receive medical treatment at any of the super speciality Government hospitals/institutes.

Centres for Excellence:

- This policy will strengthen tertiary healthcare facilities for the prevention, treatment and cure of rare diseases.
- Eight health facilities will be designated as "Centres of Excellence".
- They will also receive one-time financial support up to Rs. 5 crores to upgrade diagnostics facilities.

What are the 'rare diseases'?

- These conditions can be life-threatening and often chronic.
- WHO defines rare diseases as a lifelong, often debilitating disorder or disease with a prevalence of fewer than 1 per 1000 people.
- Different countries may have different definitions.
- If a disease or disorder affects less than 1 person in 2500, it is considered rare in India.
- There could be up to 7,000 rare diseases. Individual diseases are rarer than others, but the number of people living with rare diseases is high.
- Examples: Lysosomal storage Disorders (LSD), Gaucher Disease, Pompe Disease, Cystic Fibrosis, Muscular Dystrophy, Spina Bifida and Haemophilia.

Treatment:

- A majority of rare diseases, including those with a diagnosis that is correct, are not approved for treatment.
- Because of the high cost of drugs available, rare diseases are sometimes called "orphan diseases".

Topic 48 MAULANA AZAD FELLOWSHIP FOR MINORITIES TO STOP FROM 2023: CENTRE***Important for subject: Government Schemes***

The Union government decided to end the Maulana Azad national fellowship (MANF) for minorities in 2022-23. According to them, the scheme overlaps several other fellowship programs for higher education.

- Maulana Azad Fellowship to Minorities Scheme (MANF)
- The Ministry of Minority Affairs implements MANF scheme for educational empowerment of students from six notified minorities communities i.e. Buddhist, Christian, Jain, Muslim, Sikh, Zoroastrian.
- The Scheme is administered by the University Grants Commission. There is no waiting list under the Scheme.
- Fellowships under the MANF Scheme are available to candidates who belong to the

Six centrally notified minorities.

- Selection of candidates takes place through the JRF-NET (Junior Research Fellow National Eligibility Test), which is administered by the National Testing Agency.
- The merit list was based on marks from the Post Graduate examinations prior to 2019-20.
- In 2018-19, however, applicants who have passed the CBSE-UGC/NET/JRF exam or CSIR/NET/JRF exam were not eligible to apply.
- According to UGC data, 6,722 candidates were selected for the scheme between 2014-15 & 2021-22. Fellowships in the amount of Rs 738.85 Crores were also distributed during that period.
- Contributions by Maulana Abul Kalam Ash Azad
- He was an advocate for Hindu Muslim unity and opposed to Partition.
- He started Al-Hilal, an Urdu weekly journal. This journal played a crucial role in forging Hindu-Muslim unity following the strife between the two communities after the Morley-Minto reforms (1909).
- Hindu was opposed to the 1909 reforms that provided separate elections for Muslims.
- Al- Hilal was viewed by the government as a propagator for secessionist views, and it was banned in 1914.
- Maulana Abdul Kalam Azad started Al-Balagh, a weekly with the same mission to propagate Indian nationalism and revolutionary ideas based upon Hindu-Muslim unity.
- This paper was banned by the government in 1916. They also expelled Maulana Abdul Kalam Azad, Calcutta's chief minister, and exiled her to Bihar where she was freed after the First World War 1920.
- He was one the founders of Jamia Millia Islamia University. It was established in 1920 at Aligarh, United Provinces.
- His Works - Basic Concept of Quran and Dars-e-Wafa. India Wins Freedom.
- Azad supported the Non-Cooperation Movement (1920-22), which Gandhiji started and was entered into the Indian National Congress in 20.
- He was elected president of Indian National Congress in 1923.
- He was 35 years old when he became President of the Indian National Congress.
- Maulana Azad, a Gandhiji Salt Satyagraha participant, was arrested for violating the salt laws in 1930. For a year and half, he was held in Meerut prison.

- In 1940, he was again elected president of Congress and served until 1946.
- Post Independence
- He was elected the first education minister in free India in 1947 and held this position until his death, which occurred in 1958. He did a lot for the country's upliftment during his tenure.
- Under his tenure as education minister, the first IIT, IISc and School of Planning and Architecture were created.
- Indian Council for Cultural Relations for the introduction of Indian culture in other countries.
- 11th of November is celebrated as National Education Day every year since 2008 in honor of his birth anniversary.
- Maulana Abulkalam Azad was posthumously honored with India's highest civilian honor, Bharat Ratna, in 1992.

Topic 49. PETROLEUM AND EXPLOSIVES SAFETY ORGANIZATION (PESO)

Important for subject: Governance



All 50 license modules of the Petroleum and Explosives Safety Organisation have been

integrated into National Single Window System.

- These licenses are required to ensure the safety of hazardous substances like petroleum, compressed gas, and explosives.
- The System For Explosives Tracking & Tracking (SETT) was also created by PESO to prevent theft, diversion, and pilferage from licensed agencies as well as illegal mining and quarrying.
- Petroleum and Explosives Safety Organization
- It was previously known as Department of Explosives.
- It is a member of the Department for industrial policy and promotion, Ministry commerce & Industry.
- It was founded in 1898 to regulate the safety of hazardous substances like petroleum and compressed gases.
- Objective To ensure safety and security for public and private property from explosion and fire.
- As a statutory body, the organization is responsible for the administration of the Explosives Act 1884, Petroleum Act 1934, Inflammable Substances Act 1952, and the following Rules that were formulated under these Acts.
- PESO's headquarters is in Nagpur, Maharashtra.

Functions:

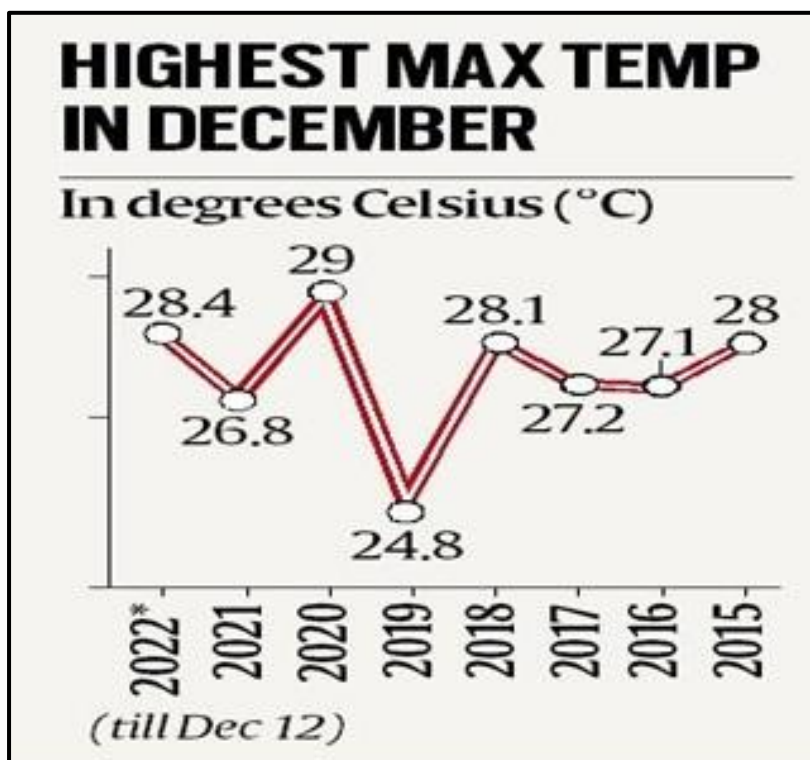
- Approval and inspection of the site, layout, and construction plans for -Explosives manufacturing plants, LPG bottling unit, etc
- Design and construction of Portable Explosives Magazines and Explosives vans must be approved.
- Licensing of the premises/units/vehicles mentioned as above.
- Periodic testing and examination of cylinders in order to grant recognition to the cylinder test station.
- Recognizance of competent persons and inspectors according to various Rules
- Issue of shot-firing permit and foreman's certificates
- Regular inspection of the above-mentioned units.
- Destruction of deteriorated and unclaimed/unserviceable/seized explosives.
- Examining petroleum tanks in seagoing vessels to issue gas-free certificates that allow

hot work, entry by man and entry into docks.

- The Organisation for ascertaining accident causes and violations has established the Acts and Rules for technical investigation of accidents involving substances.
- Evaluation of all proposals for import, export, and transport explosives in order to grant a licence.
- After adequate trials and tests, new explosives can be approved.
- If necessary, review and amend rules. Examine /testing explosives/hazardous materials for classification.
- Assisting the Central and State Governments, Industry and various Organizations in matters relating to explosives, flammable and dangerous substances.
- This organization monitors the entire critical supply chain of liquid oxygen, from the producers to the end users in an emergency like the covid-19 pandemic.

Topic 50. WHY THESE WINTERS ARE NOT WINTERY ENOUGH

Important for subject: Geography



This December has seen unusually warm days, with temperatures well above normal.

- According to India Meteorological Department data, this is the second-highest

December maximum temperature since 2015.

Reason:

- According to the IMD less western disturbances have been affecting this year.
- What are the western disturbances?
- The mid-latitude region north of the Tropic of Cancer is where the Western Disturbances occur. They are not found in the tropical area.
- It's a term that an Indian Meteorologist coined to describe the weather phenomena propagated from West.
- Western Disturbance was the first time that it was used in printed literature. It was published in 1947. Its precursor, Winter Disturbance, was however coined in 1931.
- Western Disturbances low pressure systems that are embedded within western winds (westerlies), which flow from west to west.
- Low pressure forms typically over the Mediterranean Sea before traveling over Iran and Iraq, before entering India laden with moisture.
- These moisture-laden west disturbances eventually meet the Himalayas. As a result, the moisture is trapped and precipitation occurs in the form snow and rain over Northwest India, and sometimes other parts of North India.
- Averaging 4-5 Western disturbances occur during the winter season. The rainfall distribution and amount vary with each western disturbance.
- Sometimes, western disturbances can become more severe in the Indian Region. They can reach 15° north.
- This causes rainfall to north Maharashtra and Gujarat, and the whole Madhya Pradesh to the south.

Impact:

- It is responsible for the highest winter and pre-monsoon rainfall in North-West India.
- This phenomenon is often associated with cloudy skies, unusual rain, and higher night temperatures.
- India receives between 5-10% of its annual rainfall from western disturbances, according to estimates.
- Winter brings moderate to heavy rain to low-lying regions and heavy snow to the

mountainous areas in the Indian subcontinent.

- The importance of precipitation in winter is crucial for agriculture, especially for rabi crops like wheat, barley and mustard.
- After winter, they begin to decline.
- They move through North India during the summer months April and May and sometimes help to activate the monsoon in some parts of northwest India.
- Sometimes, heavy precipitation and dense clouding can be caused by western disturbances during the monsoon season.
- Weak western disturbances can cause crop failure as well as water issues across north India.
- Residents, farmers, and governments can avoid water scarcity by utilizing strong western disturbances.

Topic 51. PIRACY

Important for subject: Geography

LS is currently discussing a bill to combat maritime piracy.

- What is piracy?
- Piracy is a act by ship-borne or boat-borne attackers on another ship or area along the coast with the purpose of stealing cargo or other valuable goods. Pirates are those who engage in acts of piracy.
- Areas of Piracy
- The Gulf of Aden and Gulf of Guinea, Strait of Malacca and Sulu and Celebes Seas. Indian Ocean and Falcon Lake (Canada).

Status:

- India does not currently have legislation regarding piracy on high seas.
- India ratified the UN Convention on the Law of the Sea (Law of the Sea) in 1995, but it was not yet enacted through the bill.

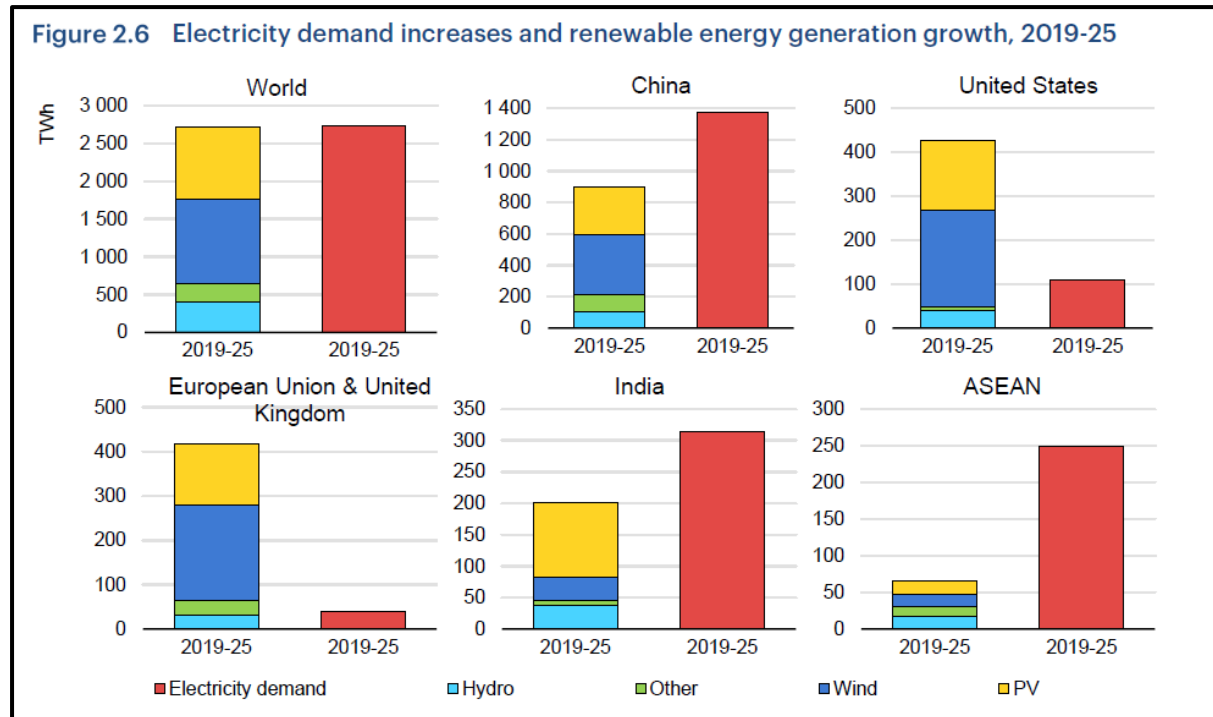
Billing:

- The Indian Penal Code (IPC), is not applicable to foreigners in international water:

- Previously, pirates were tried under the Indian Penal Code 1860 (IPC).
- India's sovereignty is however defined by its outer boundaries of territorial waters, 12 nautical mile away from the coast.
- The IPC does not allow foreigners to commit acts of piracy in India's territorial waters. Consequently, piracy cases are acquitted.
- Incidence of Piracy The Gulf of Aden is one of the most dangerous areas in the oceans because of a large number of pirate incidents.
- An increase in naval presence in the Gulf of Aden has led to piracy operations shifting to the east and south.
- This increases their proximity to India's western coast.
- In 2021, 18 Indians were abducted from a crude oil carrier off the coast Nigeria.
- Protecting the Sea Lanes for Communications (SLOCs) from Pirates
- Sea lines of communication (SLOC), a term that describes the main maritime routes between ports used for trade, logistics, and naval forces, is a term used to describe them.
- UN Convention on the Law of the Sea, 1982:
- It is an international agreement which establishes the legal framework to allow marine and maritime activities.
- It divides marine areas in five main zones namely, Internal Waters and Territorial Seas, Contiguous Zone, Exclusive Economic Zones (EEZ), and the High Seas.
- It is a set rules that govern the oceans, and how they are used. It is based upon the belief that all ocean-related problems are interrelated and must be addressed by the entire global community.
- UNCLOS regulates all aspects related to ocean space including delimitation and environmental control. It also governs economic and commercial activities as well as technology transfer and the resolution of ocean-related disputes.

Topic 52. INDIA TO ALMOST DOUBLE ITS RENEWABLE POWER CAPACITY IN NEXT 5 YEARS: IEA REPORT

Important for subject: International Relations



About IEA

- Founded in 1974 within the framework of OECD, the IEA is an independent intergovernmental organization.
- Its mission will be guided by the four main focus areas: energy security, economic growth, environmental awareness, and engagement worldwide.
- Headquarters (Secretariat): Paris, France.
- Roles & Functions:
 - was established in 1973-1974 after the oil crisis. Its purpose is to assist its members with major oil supply disruptions. This role continues today.
 - The mandate of the IEA has grown over time to include monitoring and analyzing key global energy trends, promoting sound policy and encouraging multinational energy technology cooperation.
- Eligibility and composition:
 - At present, it has 30 members. The eight member countries of the IEA family are also

included in the IEA family.

- A candidate country must be a member of the OECD. However, not all OECD members can become IEA members.
- India was made an associate member in 2017 by the IEA.
- A candidate country must show that it:
 - Crude oil and/or product reserve equal to 90 days' net imports from the previous year, which the government has instant access (even though it doesn't own them directly), and can be used to mitigate disruptions in global oil supply.
 - To reduce oil consumption in the country by as much as 10%, a demand-restraint program is implemented.
 - The legislation and organization to administer the Coordinated Emergency Response Measures (CERM) on a national level.
 - It has enacted legislation and other measures to ensure that oil companies falling under its jurisdiction provide information on request.
 - There are measures in place to ensure that each member can contribute its part to an IEA collective action.
- Reports:
 - Global Energy & CO2 Status Report.
 - World Energy Outlook.
 - World Energy Statistics.
 - World Energy Balances
 - Energy Technology Perspectives.
 - IEA Report findings
- Renewable energy will make up 90% of global electricity capacity expansion in the next five-years, with a large portion of it being in India.
- China and the European Union, as well as the United States, will all contribute to this upward trend.
- Between 2022 and 2027, renewable energy's added power capacity will reach 2,400 gigawatts.
- This expansion was 85 percent faster than the five previous years, and will equal the total installed power capacity in China today.
- India will almost double its renewable energy capacity by 2022-2027, according to 145 gigawatts (GW). Solar photovoltaic accounts for three-quarters, followed

by Onshore wind at 15% and Hydropower providing the majority.

- The two main policies to increase domestic manufacturing (came in 2022).
- In April 2022, the duty on imports increased from 15% for PV modules to 40% for solar cells. This will add 16 GW to the country's PV capacity, which is 60 percent more than last year.
- To create an environment for local manufacturing, the Production Linked Incentive scheme approved 9 GW PV manufacturing capacity.
- This program aims to increase India's solar cell and module manufacturing capacities to more 70 GWH by the end of this decade. It also includes 29 GWH of fully integrated manufacturing capacity across the entire supply chain.
- Wind, solar and discoms
- Hybrid Projects are innovative combinations from solar and wind power on a site. It could include solar, wind and battery storage, or pumped hydro storage. Another option is to bundle coal with renewables.
- Hybrid projects require storage to be successful.
- The Indian government stopped reverse bidding at wind auctions in July 2022.
- The drawbacks to the reverse bidding process include
- Only the coasts are good locations for wind energy projects.
- There are three levels of wind intensity, so there is a tier 1 site, tier 2 and tier 3 for coastal states.
- Reverse bidding also had its problems due to the differences in land costs.
- The government wants 'closed envelope bidding' but it may not be transparent.
- You should also consider the possibility of using different mechanisms together, such as accelerated appreciation, generation-based incentives or feed-in tariffs.
- Higher renewable purchasing obligations, announced in July 20,22 and specify targets for wind (solar, hydro) and other renewable energy sources (solar or bioenergy), should encourage power utilities (DISCOM), to procure renewable energy.
- DISCOM can offer incentives to encourage Rooftop solar PV cell installation.

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DADAR



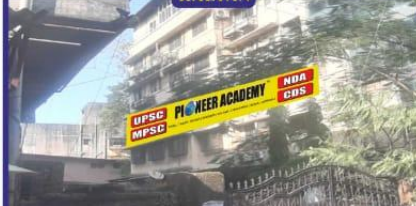
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KALYAN



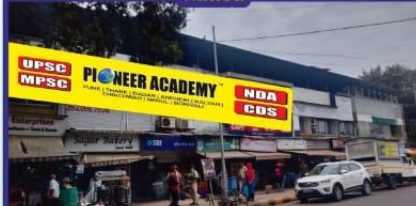
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