

WEEKLY CURRENT AFFAIRS MAGAZINE for



U.P.S.C. - C.S.E.

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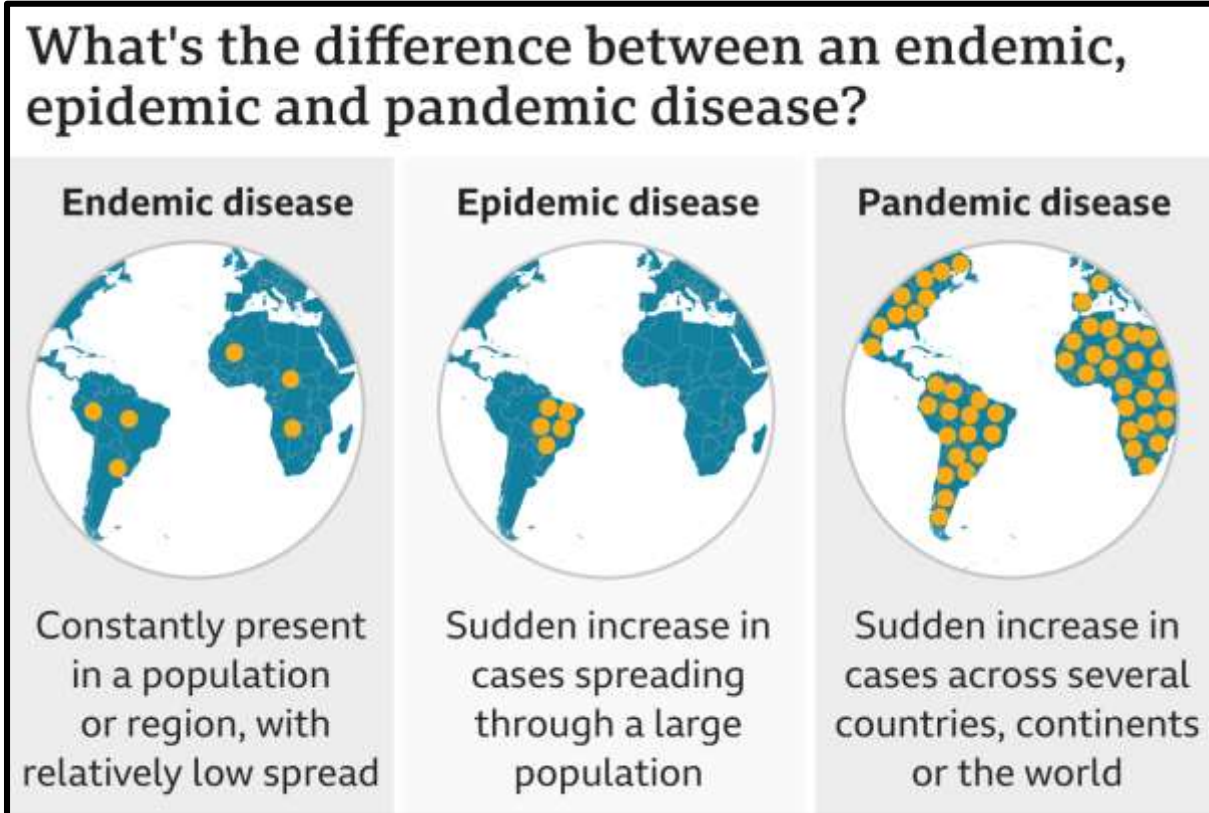
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Success is born of action...

Topic 1. ENDEMIC STAGE OF A PANDEMIC

Importance for Prelims: Science & Tech



California has announced a shift to an endemic approach to Covid-19 that may focus on looking at out for new variants and reacting quickly to outbreaks instead of supply mandates for masking inside.

Infectious disease:

- Infectious diseases are spread by either bacterial or infectious agent agents and are everpresent in society.
- Usually infected cases are present in numbers below an expected threshold however each once in an exceedingly whereas there could also be an outbreak, a new strain or a replacement disease that includes a vital impact at either an area or international level.
- The spread and rate of recent cases may be classified as:

Endemic –

- describes a unwellness that's present for good in an exceedingly region

or population

Epidemic – is a pandemic that affects many people at only once and may spread through one or many communities
Pandemic – is that the term wont to describe an epidemic once the unfold is international.

What will endemic stage mean?

- Endemic springs from Greek en that means in and demos that means individuals. it's wont to describe a unwellness that's present at an around constant level among a society or country.
- **Each country could have a disease that's unique:** for instance, respiratory disease which goes up within the winters and once the season is changing thanks to lower immunity in individuals or dengue fever which goes up once monsoons thanks to the supply of vectors.
- An infection becomes endemic once the rates become static in an exceedingly given geographical location, that means that the infective agent inflicting the disease — SARSCoV-2 during this case — is probably going to stay in circulation while not inflicting large outbreaks as witnessed over the last 2 years.
- Endemic means that the virus can continue current within the population and there'll be periodic ups and downs once the conditions are favourable to the virus and less favourable to humans.

Topic 2. DRAFT INTEGRATED PLANT NUTRITION MANAGEMENT BILL 2022

Importance for Prelims:Agriculture

Centre has come up with a draft Integrated Plant Nutrition Management Bill, 2022, that, if passed, can take the trade back to the Dark Ages of licences and controls.

- **About the Bill:** it's aimed at promoting development and property use of balanced fertilizers, including bio-fertilizers, nano-fertilizers, bio-stimulates, and organic fertilizers.
- The bill seeks to establish an 'Integrated Plant Nutrition Management Authority of India'.
- States are sceptred to appoint State Controllers of fertilizers and Fertiliser Inspectors, who will conduct impromptu inspections on trade and trade armed with overarching powers to go looking, seize and confiscate.
- No person would be able to manufacture, import available, sell, or market while not obtaining applicable registration.
- It seeks to change the method for producing production, distribution and value management of fertilizers across India.
- This can facilitate in up the ease of doing business.
- The Bill empowers the Centre with sweeping powers to cap the most marketing costs for fertilisers, whereas allowing it to mend totally different prices for different regions and customers.
- The Centre can have powers to limit the movement of fertilisers from one State to a different and to dictate the quantities of fertiliser a manufacturer may sell in every State.
- **Integrated Nutrient Management:** Integrated Nutrient Management refers to the maintenance of soil fertility and of plant nutrient offer at an

optimum level for sustaining the required productivity through improvement of the benefits from all doable sources of organic, inorganic and biological elements in an integrated manner.

- **It is based conception of:** Regulated nutrient offer for optimum crop growth and better productivity.
 - Improvement and maintenance of soil fertility.
 - Zero adverse impact on agro – ecosystem quality by balanced fertilization of organic manures, inorganic fertilizers and bio- substance
- Determinants of INM: Nutrient demand of cropping system as a whole.
- Soil fertility status and special management has to overcome soil issues, if any native availability of nutrients resources (organic, inorganic and biological sources) Economic conditions of farmers and gain of projected INM possibility.
 - Social acceptability. Ecological considerations. Impact on the environment.

Topic 3. NON FUNGIBLE TOKENS (NFTs)

Importance for Prelims: Science & Tech



The sales of NFTs surged \$25 billion in 2021 because the crypto asset exploded in popularity.

What are NFTs (Non Fungible Tokens)?

- Anything that may be converted into a digital kind will be an NFT.
- Everything from your drawings, photos, videos, GIF, music, in-game things, selfies, and even a tweet will be was an NFT, which might then be traded on-line victimization cryptocurrency.
- But what makes NFTs unique from different digital forms is that it's backed by Blockchain technology. Blockchain may be a distributed ledger wherever all transactions are recorded.

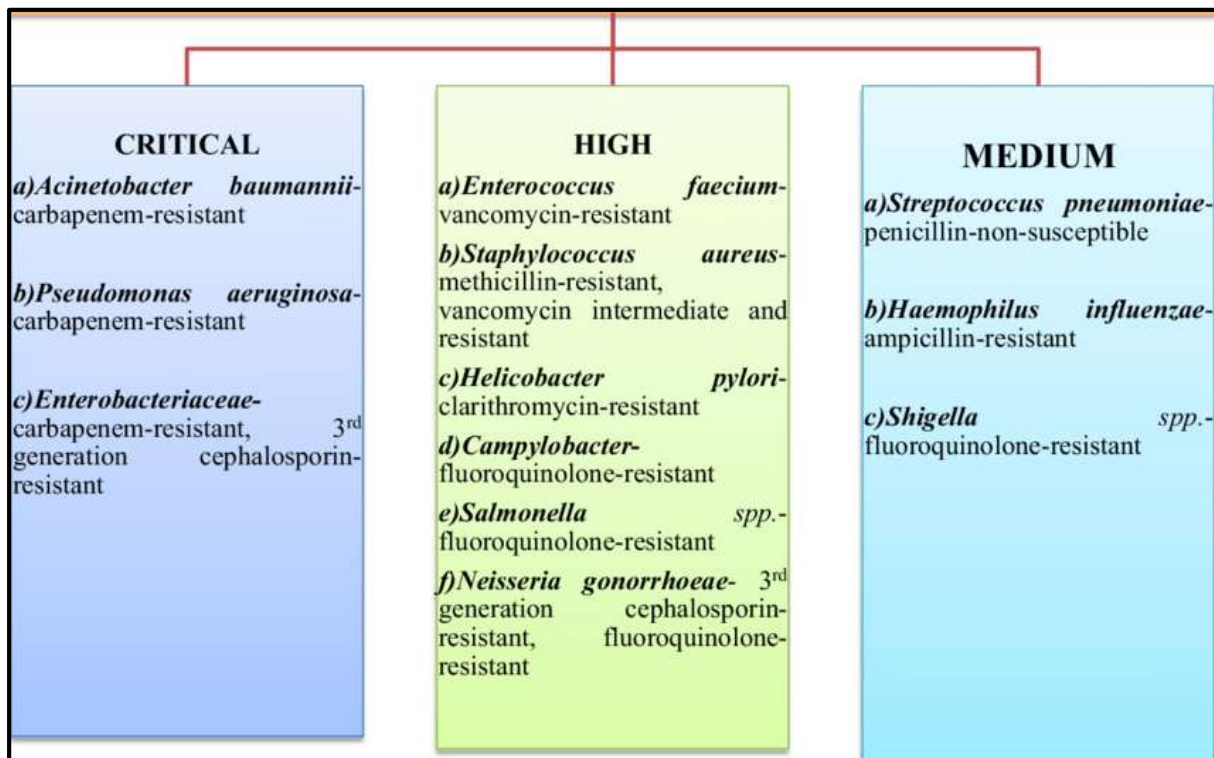
- It is like your bank record, except all of your transactions are clear and may be seen by anyone and can't be modified or changed once recorded.
Terra Nulius was the primary NFT on EthereumBlockchain
however do NFTs work?
- NFT works on blockchain because it provides users complete possession of a digital quality.
- For instance, if you're a sketch creator, and if you exchange your digital quality to an NFT, what you get is proof of ownership, powered by Blockchain.

How is an NFT different from cryptocurrency?

- NFTs and cryptocurrencies are terribly different from each other.
- While each are designed on Blockchain, that's wherever the similarity ends.
- Cryptocurrency may be a currency and is fungible, that means that it's interchangeable.
- For instance, if you hold one crypto token, say one Ethereum, following Ethereum that you hold also will be of the same value.
- But NFTs are non-fungible which means the worth of 1 NFT isn't up to another.
- Every art is different from different, creating it non fungible, and unique.

Topic 4. WHO PRIORITY PATHOGENS

Importance for Prelims: Science & Tech



Number of antibiotics, investment not sufficient to minimise threat of widespread infection according to a replacement report. Of the twelve antibiotics corporations that have gone public within the past ten years, only 5 are still active these days. WHO printed its list of antibiotic-resistant “priority pathogens” – a list of twelve families of bacteria that create the best threat to human health.

WHO’s bacteria Priority pathogen List?

- This list could be a new tool to ensure R&D responds to urgent public health wants.
- The WHO list is split into 3 categories: important, high and medium priority.

PRIORITY

1. **CRITICAL** *Acinetobacter baumannii*, carbapenem-resistant

pseudomonas aeruginosa, carbapenem-resistant *enterobacteriaceae*,

carbapenem-resistant, ESBL-producing PRIORITY

2. **HIGH** Enterococcus faecium, vancomycin-resistant staphylococcus aureus, methicillin-resistant, vancomycin-intermediate and resistant Helicobacter pylori, clarithromycin-resistant Campylobacter spp., fluoroquinolone-resistant Salmonellae, fluoroquinolone-resistant neisseria gonorrhoeae, cephalosporin-resistant, fluoroquinolone-resistant.

3. **MEDIUM** streptococcus pneumoniae, penicillin-non-susceptible Haemophilus influenzae ampicillin-resistant shigella spp., fluoroquinolone-resistant The Indian pathogen Priority List (IPPL) discharged by Union Ministry for Health and Family Welfare is aligned with WHO's global Priority pathogen List of antibiotic-resistant bacteria.

Topic 5. CENTRAL BANK DIGITAL CURRENCY

Importance for Prelims: Economy



The Budget has proposed the introduction of digital currency, using blockchain and other technologies, by the RBI in FY23.

CBDC:

- According to the RBI, the CBDC are going to be a legal tender in digital form.
- It will be identical as fiat currency and can be exchangeable matched with fiat currency.
- The Finance Bill has provisions for amending the RBI Act, 1934, to introduce the CBDC.
- A change has to be created to Sections 2 and 22 of the Act, which will make sure that CBDC is thought to be bank notes.
- It is also proposed to insert a brand new Section 22A about the non-relevancy of some sections of the Act for the digital bank note.
- Sections 24 (denomination of notes), Section 25 (form of bank notes), Section 27 (re-issue of notes), Section 28 (recovery of notes lost, stolen, mutilated or imperfect) and Section 39 (obligation to produce different styles of currency)

Topic 6. SEPARATIST REGIONS OF UKRAINE

Importance for Prelims: Geography



President Vladimir Putin told his security council on Monday that Russia ought to consider recognising the independence of the self-proclaimed Donetsk People's Republic and therefore the Lugansk People's Republic in Donbass as independent.

- The Lugansk and Donetsk Peoples Republics are settled within the historical Donbass region of eastern Ukraine.
- Since Ukraine's independence from the Russia in 1991, the East and Western Ukraine generally voted for various candidates in presidential elections.
- President Yanukovich's overthrow within the 2014 Ukrainian revolution led to protests in eastern Ukraine, that gradually escalated into an armed conflict between the fresh fashioned Ukrainian government and

therefore the local armed militias.

Topic 7. HOW SEA TURTLES HELP FACE CYCLONES

Importance for Prelims: Science & Tech.

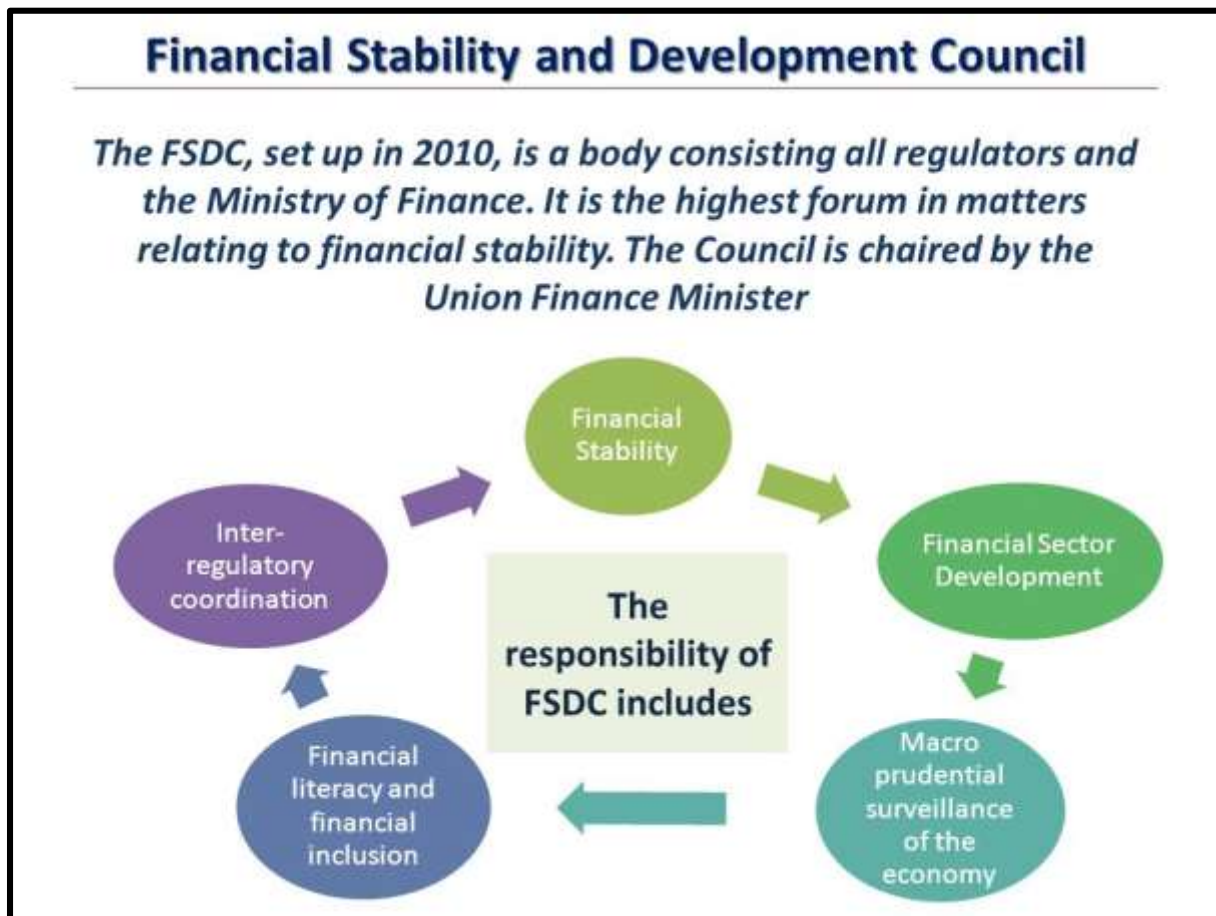
Sea turtles on Reunion Island, a French territory within the Indian Ocean, are being fitted with special tags to help researchers collect data about cyclones.

STORM:

- STORM (Sea Turtles for Ocean research and Monitoring) could be a partnership between the Kelonia care centre and also the Atmosphere and Cyclone Laboratory of the University of la Réunion.
- It could be a cooperation between biologists and meteorologists for: higher information of the oceanic behaviour of juvenile sea turtles, and New data on the surface and sub-surface temperatures of the oceans and also the genesis of cyclones.
- Argos tags are equipped with temperature and depth sensors and record temperature variations with the depth throughout turtle dives.
- It is that the oceanic movements of the turtles, throughout that they cross the zones of creation and development of cyclones.
- **Reunion Island:** Réunion could be a French overseas department and overseas region within the western Indian Ocean.
- It is found about 420 miles (680 km) east of Madagascar and 110 miles (180 km) southwest of Mauritius.

Topic 8. FINANCIAL STABILITY DEVELOPMENT COUNCIL (FSDC)

Importance for Prelims:Economy



The financial Stability Development Council met on Tuesday to seem at potential challenges for financial stability. The challenges embrace crude oil International situation in Ukraine along with others.

- The financial Stability and Development Council (FSDC) was brought about by an executive Order of the Union Government as a non-statutory apex body under the Ministry of Finance in 2010.
- The RaghuramRajan committee (2008) on financial sector reforms 1st projected the creation of FSDC. Council Members The finance minister is that the Chairman of the FSDC.

Members of FSDC include Heads of the financial Sector Regulators listed below:

- I. reserve bank of India (RBI)
- II. Insurance regulatory and Development Authority (IRDA)
- III. Securities and Exchange Board of India (SEBI)
- IV. Pension Fund regulatory and Development Authority (PFRDA)
- V. other members are Finance Secretary, Chief Economic adviser and Secretary of the Department of financial Services.
- VI. FSDC sub-committee is headed by the Governor of RBI.

Topic 9. NEEM- THE GREAT HEALER BATTLING FOR LIFE

Importance for Prelims: Environment

HERB FOR HEALTH



NEEM

(Azadirachta Indica)

C
O
N
S
T
I
T
U
E
N
T
S

Leaves: Quercetin | Nimbosterol

Seeds: Azadirachtin | Azadiradion | Nimbin

Bark: Nimbinin | Nimbidin | Nimbosterol | Nimbidiol | Tannins



Skin

Neem helps in healing mild skin problems like rashes, irritation, acne and infections with its antibacterial and anti-inflammatory properties.



Immune System

Its detoxifying effects on the body make it a great immune booster.



Blood Sugar

The purifying benefits neem has on the body's blood and circulation also help support healthy blood sugar levels to be in the normal range.



Metabolism

Neem's kapha reducing properties encourage both digestion & elimination of fats and water, hence preventing water retention in the body.



Hair

For those with excess pitta and heat trapped in the scalp and hair follicles, neem is terrific for cooling the scalp and supporting the growth of lustrous, smooth hair.

Scientists hope its medicinal properties will fight the ‘dieback disease’.

Dieback Disease:

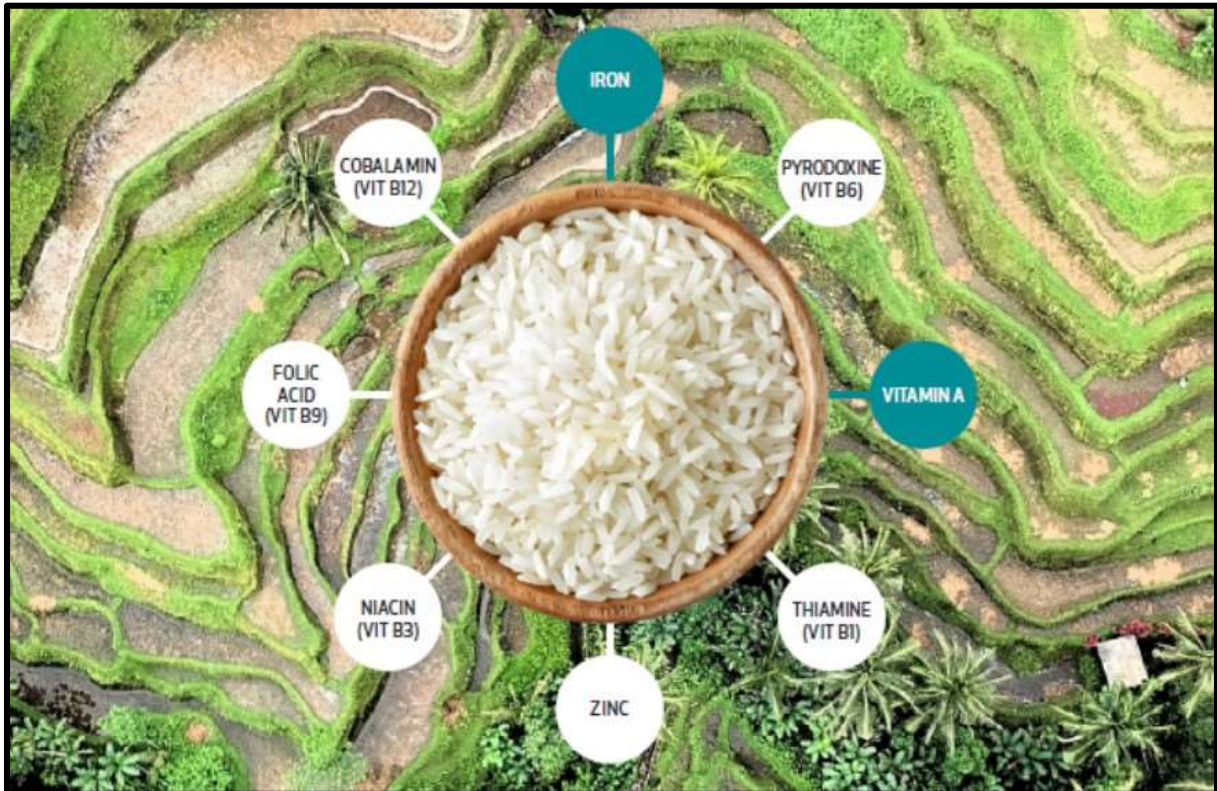
- Observed within the Gadwal region of Telangana some months past, the ‘dieback disease’ in neem tree.
- It may be a fungal infection that fungal infection speedily, infecting thousands of neem trees across the State.
- The disease changes the leaf color to pale inexperienced or yellow, scorches the leaf margins and reduces the growth of twigs and stem.
- The disease ends up in the death of the tree.
- ‘Dieback’ refers to the progressive death of twigs and branches that typically starts at the tips.
- It was initial reported in India in Dehradun in 1992.
- **Neem Tree:** Azadirachta indica is often called neem tree.

It may be a tree within the mahogany family nim tree is noted for its antiviral, anti-bacterial and anti-inflammatory properties.

- Neem is thought for its pesticidal and insecticidal properties, however individuals also use it in hair and dental products.
- Neem has been patented by India for its use as biofertilizer, biopesticide and protective compound as contraceptive.

Topic 10. RICE FORTIFICATION

Importance for Prelims: Science & Tech



The government of India plans to require accelerated steps to distribute fortified rice through the social safety web schemes of Targeted Public Distribution System, PM Poshan and ICDS all told parts of the country by 2024 in an exceedingly phased manner. Currently, the pilot theme is being enforced in 11 districts.

Fortification of Rice:

- It refers to the The fortified Rice usually contains group, Vitamin B1, vitamin B12, Folic Acid, Iron and zinc.
- A review, conducted by Food Fortification Initiative indicated that iron deficiency, ferritin, haemoglobin and anaemia recorded a big improvement within the intervention group.
- Another study found vital improvements in psychological feature test scores and hemoprotein concentrations, and reduction in anaemia within the intervention group.

Topic 11. FUNDAMENTAL DUTIES

Importance for Prelims: Polity

The Supreme Court issued notices to the Centre and states during a writ petition filed by advocate DurgaDutt seeking the enforcement of the elemental duties of citizens as enshrined within the Constitution of India.

- The elementary duties were incorporated partially IV-A of the Constitution by The Constitution (42nd Amendment) Act, 1976 on the advice of Swaran Singh committee.
- Article 51(A) describes 11 elementary duties — 10 came with the 42nd change; the 11th was more by the 86th Amendment in 2002.
- These duties don't seem to be enforceable by law.
- However, a court might take them into account whereas adjudicating on a matter.
- The Russian Constitution has the concept of elementary duties.

Article 51(A) says it shall be the duty of each citizen of India:

- (a) to abide by the Constitution and respect its ideals and institutions, the allegory and also the National Anthem;
- (b) to cherish and follow the noble ideals that impressed our national struggle for freedom;
- (c) to uphold and defend the sovereignty, unity and integrity of India;
- (d) to defend the country and render service once known as upon to do so;
- (e) to promote harmony and also the spirit of common brotherhood amongst all the individuals of Republic of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;
- (e) to value and preserve the made heritage of our composite culture;
- (f) to defend and improve the natural surroundings together with forests, lakes, rivers and wild life, and to have compassion for living creatures;

- (g) to develop the scientific temper, humanism and also the spirit of inquiry and reform;
- (h) to safeguard public property and to abjure violence;
- (i) to strive towards excellence all told spheres of individual and collective activity so the nation perpetually rises to higher levels of endeavour and achievement;
- (j) who may be a parent or guardian to supply opportunities for education to his child or, because the case could also be, ward between the age of six and fourteen years.

Topic 12. WTO & TRIPS

Importance for Prelims:IR

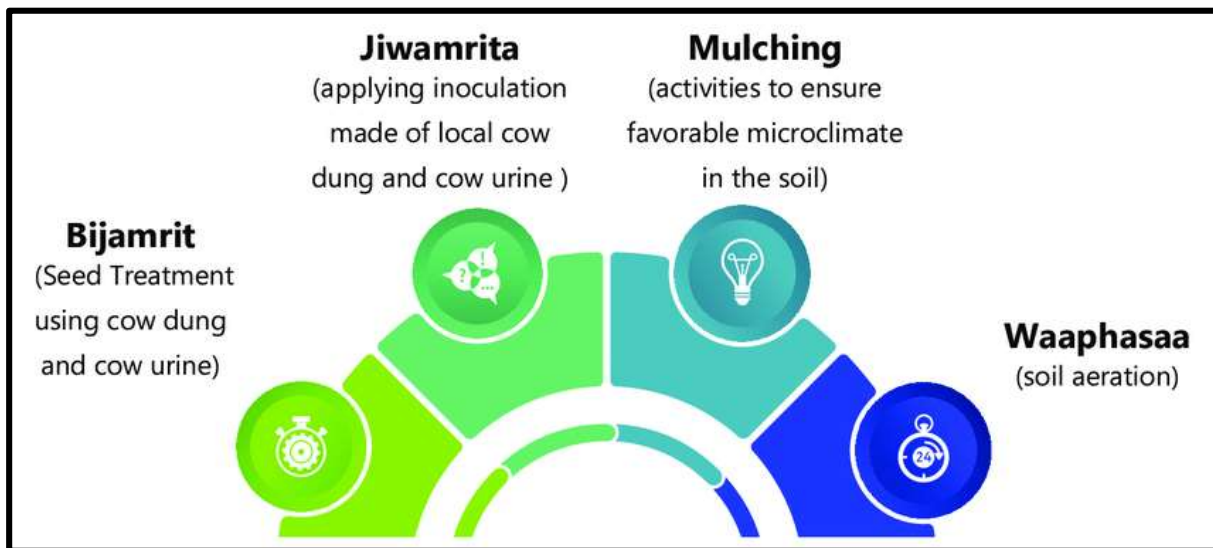
India and South Africa, piloted a proposal to waive key provisions of the TradeRelated Aspects of intellectual property Rights (TRIPS) agreement on Covid-19 vaccines, drugs, medicine, and connected technologies.

TRIPS Waiver:

- The core plan behind the proposal is that intellectual property (IP) rights like patents shouldn't become a barrier in scaling up the assembly of medical product like vaccines, diagnostics and therapeutics essential to combat Covid-19.
- The visits discharge proposal would provide immunity to member countries from a legal challenge at the world organization if their domestic intellectual property Regulation (IPR) laws suspend or don't enforce IP protection.
- visits Agreement: The TRIPS agreement was negotiated in 1995 at the WTO, it needs all its individual countries to enact domestic law.
- It guarantees minimum standards of IP protection.
- It allows innovators to monetise their intellectual property in multiple countries.
- In 2001, the WTO signed the Doha Declaration, that processed that in a very public health emergency, governments might compel companies to license their patents to makers, even if they didn't suppose the offered price was acceptable.
- This provision, unremarkably said as “compulsory licensing”.
- Under Section 92 of the 1970 Indian Patents Act, the central government has the ability to permit compulsory licenses to be issued at any time just in case of a national emergency or circumstances of extreme urgency.

Topic 13. ZERO BUDGET NATURAL FARMING (ZBNF)

Importance for Prelims: Environment



In her budget speech, finance minister Nirmala Sitharaman reaffirmed the Centre's commitment to natural, chemical-free, organic and zero-budget farming. it's the third time within the last four budget speeches where (zero budget) natural farming finds a mention.

Zero Budget Natural Farming:

- Zero budget natural farming may be a method of chemical-free agriculture drawing from traditional Indian practices.
- It was originally promoted by agriculturist Subhash Palekar, who developed it within the mid-1990s as another to the inexperienced Revolution's ways that are driven by chemical fertilizers and pesticides and intensive irrigation.
- It relies on Agroecology.
- It aims to bring down the value of production to almost zero and come back to a pregreen revolution form of farming.
- **ZBNF relies on four pillars: Jeevamrita:** it's a mixture of contemporary cow dung and aged cow urine, jaggery, pulse flour, water and soil; to be applied on farmland.

- **Bijamrita:** it's a concoction of neem leaves & pulp, tobacco and green chilies ready for insect and pest management, which will be wont to treat seeds.
- **Mulching:** It protects topsoil throughout cultivation and doesn't destroy it by cultivation.
- **Whapasa:** it's the condition wherever there are each air molecules and water molecules present in the soil (aeration).
- Thereby serving to in reducing irrigation demand.
- **Sustainable ZBNF in India Requires:** first, concentrate on promoting natural farming in rainfed areas on the far side the Gangetic basin.
- Home to half of India's farmers, rainfed regions use only a 3rd of the fertilisers.
- The shift to chemical-free farming are easier in these regions.
- Second, change automatic enrolment of farmers transitioning to chemical-free farming into the government's crop insurance scheme, PM FasalBimaYojana (PMFBY) as any transition in agriculture — crop diversification, change in farming practices — adds to the farmer's risk.
- Third, promote microenterprises that turn out inputs for chemical-free agriculture.
- Not each farmer has the time, patience, or labour to develop their own inputs.
- Fourth, leverage NGOs and champion farmers who are promoting and practising property agriculture across the country.
- Fifth, beyond evolving the info in agricultural universities, upskill the agriculture extension employees on property agriculture practices.
- Sixth, leverage community institutions for awareness generation, inspiration, and social support.
- In alternative words, the govt. should facilitate a system in which

farmers learn from and support one another whereas creating the transition.

- Seventh, support observation and impact studies. Such assessments would guarantee an wise approach to scaling up sustainable agriculture.

Topic 14. SUGARCANE FRP

Importance for Prelims:Agriculture

The Maharashtra government has issued a government resolution which is able to enable sugar mills to pay the essential fair and remunerative price (FRP) in 2 tranches.

- Fair and Remunerative price (FRP): FRP is that the minimum value at that sugarcane is to be purchased by sugar mills from farmers.
- The Central Government announces fair and Remunerative costs that are determined on the advice of the Commission for Agricultural costs and prices (CACP) and announced by the cupboard Committee on Economic Affairs (CCEA).
- CCEA is chaired by the Prime Minister of India.
- The FRP relies on the Rangarajan Committee report on reorganizing the sugarcane business.
- The payment of FRP across the country is ruled by The Sugarcane control order, 1966 that mandates payment inside 14 days of the date of delivery of the cane.
- **State Government:** State advised prices (SAP) The SAP are proclaimed by the Governments of key sugarcane producing states.
- SAP is usually higher than FRP.
- Sugarcane: India is that the second largest producer of sugarcane when Brazil.
- Top Sugarcane manufacturing States: Uttar Pradesh > maharashtra >Tamil Nadu >Karnataka > Andhra Pradesh> province.
- **Ideal Temperature:** Between 21-27°C with hot and wet climate.
- **Rainfall:** Around 75-100 cm. It is fully grown on all kinds of soils starting from sandy loam to clay loam given these soils should be drained.

Topic 15. ARAVALI

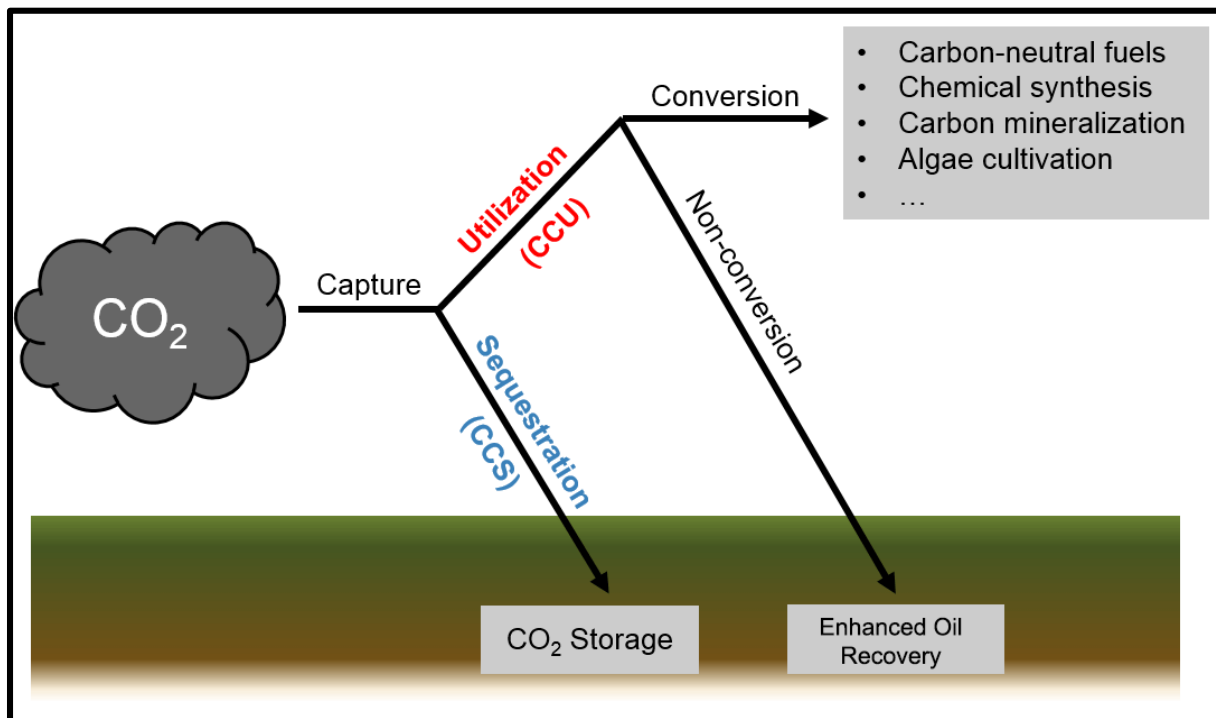
Importance for Prelims: Geography

In January 2022, 5 people were killed in a very landslide at Tosham's Dadam mining zone within the Bhiwani district of Haryana. The incident put the spotlight on the mining activities in Aravalli hills flouting prescribed rules and threatening native ecology.

- The Aravalli vary, an worn stub of ancient mountains, is that the oldest vary of fold mountains in India.
- The natural history of the Aravalli vary dates back to times once the Indian Plate was separated from the Eurasian Plate by an ocean.
- They extend from Gujarat, Rajasthan up to south Haryana before finally ending in Delhi. the very best peak is Guru Shikhar at 1,722 meters.
- Three major rivers and their tributaries be due the Aravalli, particularly Banas and Sahibi rivers that are tributaries of Yamuna, similarly as Luni river that flows into the Rann of kutch.
- The Aravallis could be a biodiversity hotspot with 400-odd species of trees, shrubs and herbs; 200-odd native and migratory bird species; 100-odd butterfly species; 20-odd reptile species and 20-odd mammal species, as well as leopard

Topic 16. CARBON CAPTURE & UTILISATION TECHNOLOGIES

Importance for Prelims: Science & Tech



Most carbon capture and utilisation (CCU) technologies, that suck carbon dioxide (CO₂) from the atmosphere and convert it into fuel or different valuable products, might fail to assist the globe reach net Zero emissions by 2050, in step with a new study.

- **Carbon Capture, Utilization and Storage (CCUS):** CCUS technology is meant to capture CO₂ emissions from combustion of fossil fuels.
- It will absorb 85-95% of CO₂ emissions within the atmosphere.
- The process starts with the capture of generated CO₂ that undergoes a compression method to create a dense fluid.
- This eases the transport and storage of the captured CO₂.
- The dense fluid is transported via pipelines and so injected into an underground storage facility.
- Captured CO₂ also can be used as a raw material in different industrial processes like bicarbonates.
- CO₂ captured using CCU technologies are regenerate into fuel (methane and methanol), refrigerants and building materials.
- The captured gas is used directly in fire extinguishers, pharma, food and potable industries further because the agricultural sector.

Topic 17. UNEA (UNITED NATIONS ENVIRONMENT ASSEMBLY)

Importance for Prelims:Environment



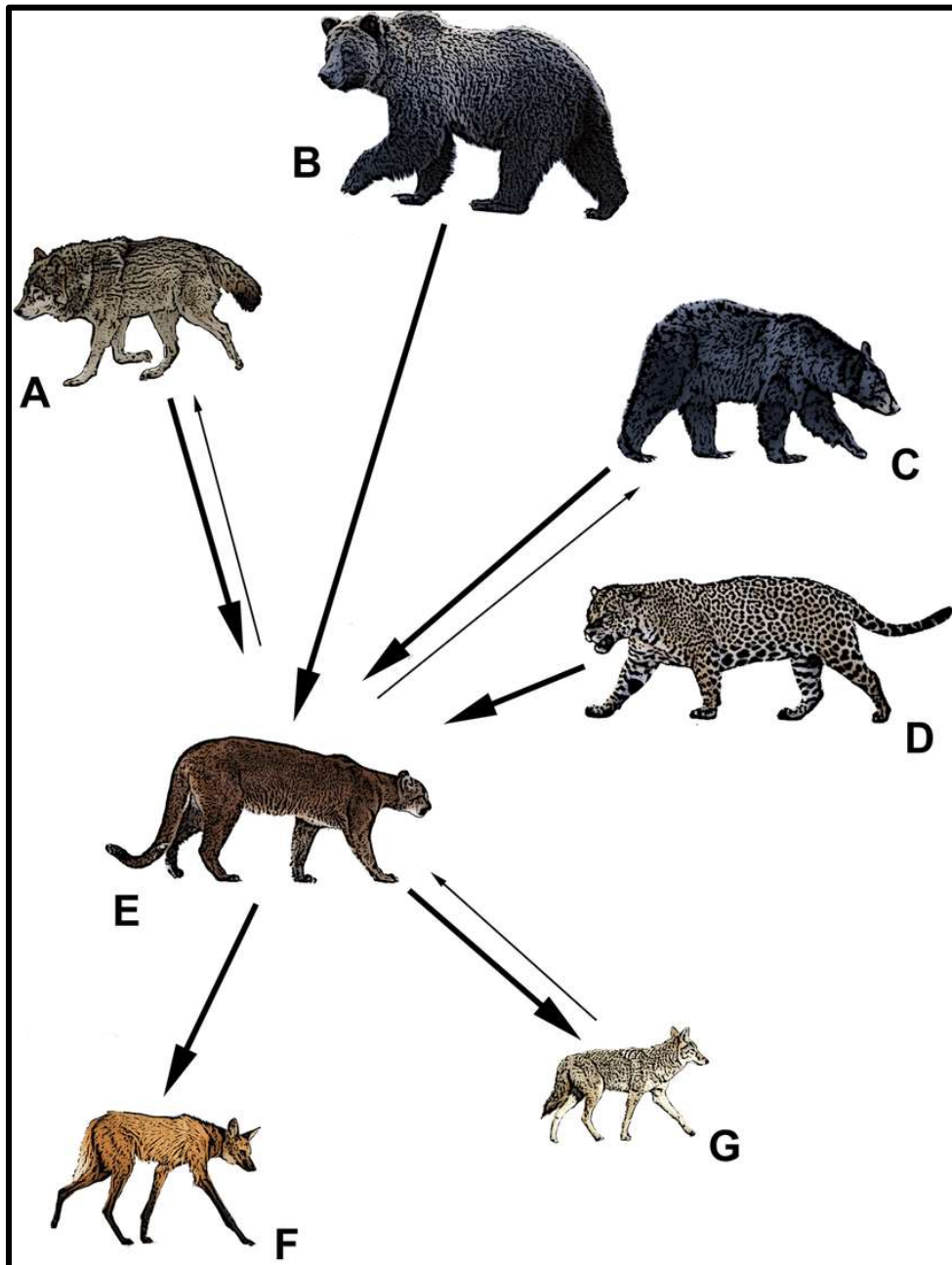
The 5th meeting of UNEA are command February 28, 2022 in Nairobi, Kenya.

- **About UNEA:** UNEA was created in June 2012, during the United Nation Conference on property Development (RIO+20).
- Hosted by the UN environment Programme, the united nations environment Assembly (UNEA) brings along representatives of the 193 Member States of the United Nations, businesses, civil society and other stakeholders to agree on policies to deal with the world's most pressing environmental challenges.
- It meets biennially to set priorities for global environmental policies and develop international environmental law.
- The overall theme for UNEA-5 is “Strengthening Actions for Nature to achieve the sustainable Development Goals”.
- **Basel Convention:** The Basel Convention on the management of Transboundary Movements of venturous Wastes and Their Disposal, sometimes called the Basel Convention, is an international accord that was designed to cut back the movements of venturous waste between nations, It specifically to forestall transfer of hazardous waste from developed to less developed countries (LDCs).

- It doesn't, however, address the movement of radioactive material.
- The convention was opened for signature on 21 March 1989, and entered into force on 5 might 1992.
- **Stockholm Convention:** national capital Convention on Persistent Organic Pollutants is an international environmental accord opened for signature in 2001 in Stockholm (Sweden) and have become effective in 2004.
- It aims to eliminate or prohibit the production and use of persistent organic pollutants (POPs).
- The convention calls to ban 9 of the dirty dozen chemicals (key POPs), limit the employment of insecticide to malaria management, and curtail inadvertent production of dioxins and furans.
- **The convention listed twelve distinct chemicals in 3 categories:** 8 pesticides (aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, mirex and toxaphene) 2 industrial chemicals (poly chlorinated biphenyls and hexachlorobenzene) 2 unintended by-products of the many industrial processes involving chlorine normally referred to as dioxins and furans.

Topic 18. APEX PREDATORS

Importance for Prelims: Environment



The sloth bear, tiger and dhole are among 36 apex predators worldwide affected the foremost because of February in their native habitats, a study revealed february 21, 2022, within the journal Nature, has stated.

- Eight of the top ten apex predators most affected because of roads running through their home ground are from Asia.

- **Other necessary predators plagued by roads across continents include:** Iberian lynx (Europe) African wild dog (Africa) Lion (Africa and Asia) Ethiopian wolf (Africa) Leopard (Asia and Africa) striped hyena (Asia and Africa) Canadian wildcat (North America) Wolverine (North America and Eurasia) brown hyena (Africa) Fosa (Madagascar) Spectacle Bear (South America) maned wolf (South America) Apex Predators: an apex predator, also referred to as an alpha predator or prime predator, may be a predator at the highest of a food chain, while not natural predators.
- Apex predators area unit sometimes outlined in terms of trophic dynamics, meaning that they occupy the best trophic levels.
- For example, wolves prey principally upon massive herbivores (primary consumers), that eat plants (primary producers).
- The apex predator concept is applied in life management, conservation and ecotourism.
- **Significance:** Apex predators have an effect on prey species' population dynamics and populations of different predators, each in aquatic and in terrestrial ecosystems.
- They are central to the functioning of ecosystems, the regulation of disease, and therefore the maintenance of biodiversity.
- Humans don't seem to be thought of apex predators as a result of their diets are generally various, though human trophic levels increase with consumption of meat.

Topic 19. PLASTIC WASTE MANAGEMENT (AMENDMENT) RULES 2022

Importance for Prelims:Environment

The Ministry of atmosphere, Forest and climate change has notified comprehensive tips on Extended Producer Responsibility (EPR) for plastic packaging, that comes into immediate effect.

Plastic Waste Management (Amendment) Rules, 2022: The new rules classify plastics into four categories:

1. **category 1** can embrace rigid plastic packaging;
2. **category 2** can include flexible plastic packaging of single layer or multilayer (more than one layer with different types of plastic), plastic sheets and covers made of plastic sheet, carry bags, plastic sachet or pouches.
3. **category 3** include Multi-layered plastic packaging (at least one layer of plastic and a minimum of one layer of fabric aside from plastic).
4. **category 4** : plastic sheet used for packaging moreover as carry baggage made of compostable plastics.
 - The EPR (Extended Producer Responsibility) covers utilise, recycling, use of recycled plastic content and finish of life disposal by producers, importers and brand-owners.
 - According to the new rules, the producers, importers and brand-owners shall got to give the small print of use certificates solely from registered recyclers along with the small print of amount sent for end-of-life disposal.
 - The certificates shall be subject to verification by Central Pollution instrument panel or State Pollution instrument panel or Pollution management Committee.
 - **Online portal:** the government has additionally demanded establishing of a centralised on-line portal by Central Pollution control board (CPCB)

for the registration moreover as filing of annual returns by producers, importers and brand-owners, plastic waste processors of plastic packaging waste.

- The centralised portal would act because the single point information repository with respect to orders and tips associated with implementation of EPR for plastic packaging beneath Plastic Waste Management Rule, 2016.
- **Committee for implementation:** As per the new notification, the government has declared fixing of a committee that shall be deep-rooted by the CPCB under chairpersonship of CPCB chairman, to recommend measures to the atmosphere ministry for effective implementation of EPR, as well as amendments to Extended Producer Responsibility (EPR) guidelines.
- SPCBs or PCCs shall submit annual report on EPR portal with respect to its fulfilment by producers, importers and brand-owners (which include makers of plastic packaging material) and plastic waste processors within the state/Union Territory to the CPCB.

Topic 20. RESERVE CURRENCY

Importance for Prelims:Economy

Following the financial crisis of 2008, the dollar's share in trade and currency reserves has fully grown. The dollar is nowhere close to being dethroned because the world's reserve currency.

According to the International financial Fund's report :

- As of 2021, the dollar is employed in close to 80 per cent of all cross-border money transactions.
- **Foreign Exchange Reserves:** foreign exchange reserves are unit assets endured reserve by a central bank in foreign currencies, which may embody bonds, treasury bills and different government securities.
- It must be noted that most interchange reserves are control in US dollars.
- India's Forex Reserve include: Foreign Currency Assets Gold reserves Special Drawing Rights Reserve position with the International monetary fund (IMF).
- **Foreign Currency Assets:** FCAs are assets that are valued supported a currency apart from the country's own currency.
- FCA is that the largest part of the forex reserve.
- It is expressed in dollar terms.
- The FCAs embody the result of appreciation or depreciation of non-US units just like the euro, pound and yen held within the foreign exchange reserves.

Topic 21. MUGHAL ERA COINS

Importance for Prelims: Art & Culture



A piece of antiquity beaked as a rarity — a one-rupee silver coin affected at Kabul mint by Shah Jahan to declare rebellion against his father Jahangir in 1627 — goes under the beat in Bengaluru on February 26.

- The coin has been affected at Kabul within the name of Khurram, the pre-accession name of Shah Jahan.
- The coin was a very important facet within the power struggle between Jahangir and his 1st son Khurram (Shah Jahan).
- **Mughal Coinage:** the standard gold coin of the Mughals was the Mohur.
- AbulFazl in his 'Ain-i-Akbari' indicated that a Mohur was adore 9 rupees.
- Half and quarter mohurs are known.
- The silver rupee that was an adoption from Sher Shah's currency, was the foremost notable of all Mughal coins.
- Akbar issued each round and square coins.
- In 1579, he issued gold coins referred to as Ilahi coins to propagate his new spiritual creed 'Din-i-Ilahi'.
- On this coin, it was written 'God is nice, might his glory be glorified'. Sahansah was the biggest gold coin.
- These coins bore the names of the persian solar months. Jahangir showed the legend during a couplet within the coins

- In some of his coins, he added the name of his beloved wife Noorjahan.
- The most notable of his coins had pictures of Zodiac signs.
- Shah Jahan continuing striking coins in 3 metals i.e. gold (mohur), silver (rupee) and copper (dam).
- His pre-accession coins bear the name Khurram.
- Rare coins were affected within the name of Khurram during the early reign of Shah Jahan within the mints of lahore and Kabul.

Topic 22. TRADE IMPACTS OF RUSSIA- UKRAINE CONFLICT

Importance for Prelims:IR

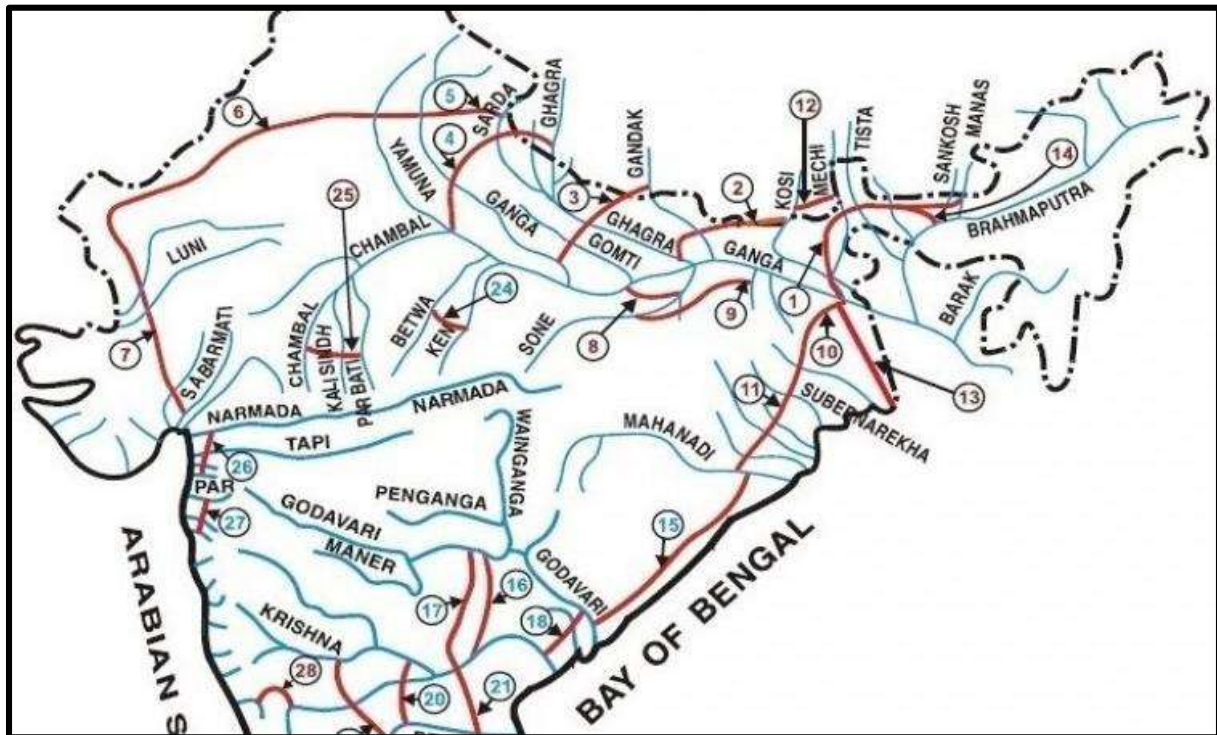
The Russia-Ukraine conflict settle down weigh heavily on India's tea exports to the CIS if things doesn't quiet down quickly.

Impact on India Tea Exports:

- Tea exports to CIS account for nearly 23-24 per cent of the country's total exports. Of this, exports to land stood at 30.89 mkg, nearly 77 per cent of the overall exports to the CIS.
- Russia may be a long run and a really stable market for Indian tea.
- **Impacts on Oil & Gas:** The Russia-Ukraine war will have an enormous pertaining to global natural gas markets, since Russia produces nearly 17 per cent of natural gas and incorporates a 25 per cent share of total gas exports.
- **Impact on Metals:** Russia contributes nearly 12 per cent to global trade in aluminum.
- Any sanction obligatory on Russian aluminum exports can aggravate the metal convenience within the rest of the world.
- **About Commonwealth of freelance Nations:** Commonwealth of independent States (CIS) was created in December 1991.
- In the adopted Declaration the participants of the Commonwealth declared their interaction on the idea of sovereign equality.
- **Members :** Azerbajdzhan, Armenia, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Uzbekistan, uzbekistan and Ukraine.

Topic 23. RIVER INTERLINKING

Importance for Prelims: Environment



The Ken-Betwa River Linking Project



The finance minister In Budget 2022 announced that “Draft DPRs (Detailed Project Reports) of the 5 river links together with the implementation of the Ken-Betwa Link Project

- The 5 river Links Include: Damanganga-Pinjal, Par- Tapi-Narmada, Godavari-Krishna, Krishna-Pennar and Pennar-Cauvery.
- **About Ken Betwa Link Project:** The Ken-Betwa Link project proposes to transfer water from the Ken river to the Betwa — each tributaries of Yamuna.
- This link project can have a canal network of 221 kilometre. The water-starved Bundelkhand region in Uttar Pradesh and Madhya Pradesh covering a total of 13 districts can primarily take pleasure in this project.
- **About river Interlinking:** The RLP involves the method of amusive surplus river water through a network of canals to water-starved areas either inside or outside a State.
- The proposal for interwoven of rivers in India dates back to proposals created by Sir Arthur Cotton and K.L. Rao within the 19th century.
- Under the NPP (National Perspective Plan) 1980s, the National water development Agency (NWDA) known 14 river links within the northern Himalayan river development component and 16 within the southern peninsular river development component for inter-basin transfer of water.

Topic 24. BHAKTI SAINT NARSINGH MEHTA

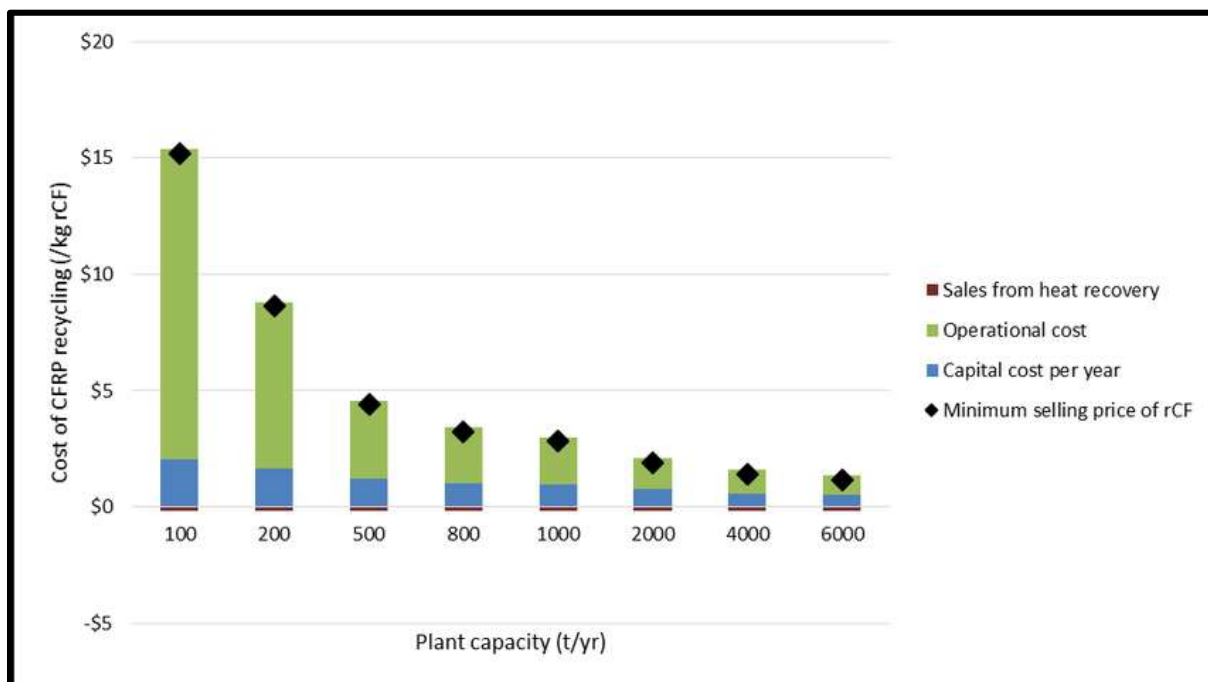
Importance for Prelims: Art & Culture

Researchers in Gujarat have discovered a new species of spider and named it Narsinhmehtai, in honour of Narsinh Mehta, a 15th century author who was a friend of Lord Krishna.

- About Narsingh Mehta: Narsinh Mehta, also referred to as Narsi Mehta or NarsiBhagat, was a 15th-century poet-saint of Gujarat, India, notable as a bhakta, an exponent of vaishnava poetry.
- Mehta is believed to have been born in Talaja in current Bhavnagar district in 1410 and died in Junagadh in 1480s.
- Mehta is regarded as adikavi (the initial poet) and bhaktakavi (devout poet) in Gujarati literature.
- Mehta fenced in more than 750 poems, called padd in Gujarat.
- They mainly deal with devotion to Lord Krishna, gyan (wisdom) vairagya (detachment from worldly affairs).
- His bhajanVaishnav January To was mahatma Gandhi's favorite and has become synonymous with him.

Topic 25. MINIMUM SELLING PRICE

Importance for Prelims: Agriculture



MSPs provide a floor for market prices, and make sure that farmers receive a precise “minimum” remuneration so as that their prices of cultivation (and some profit) is also recovered.

Minimum Support price (MSP):

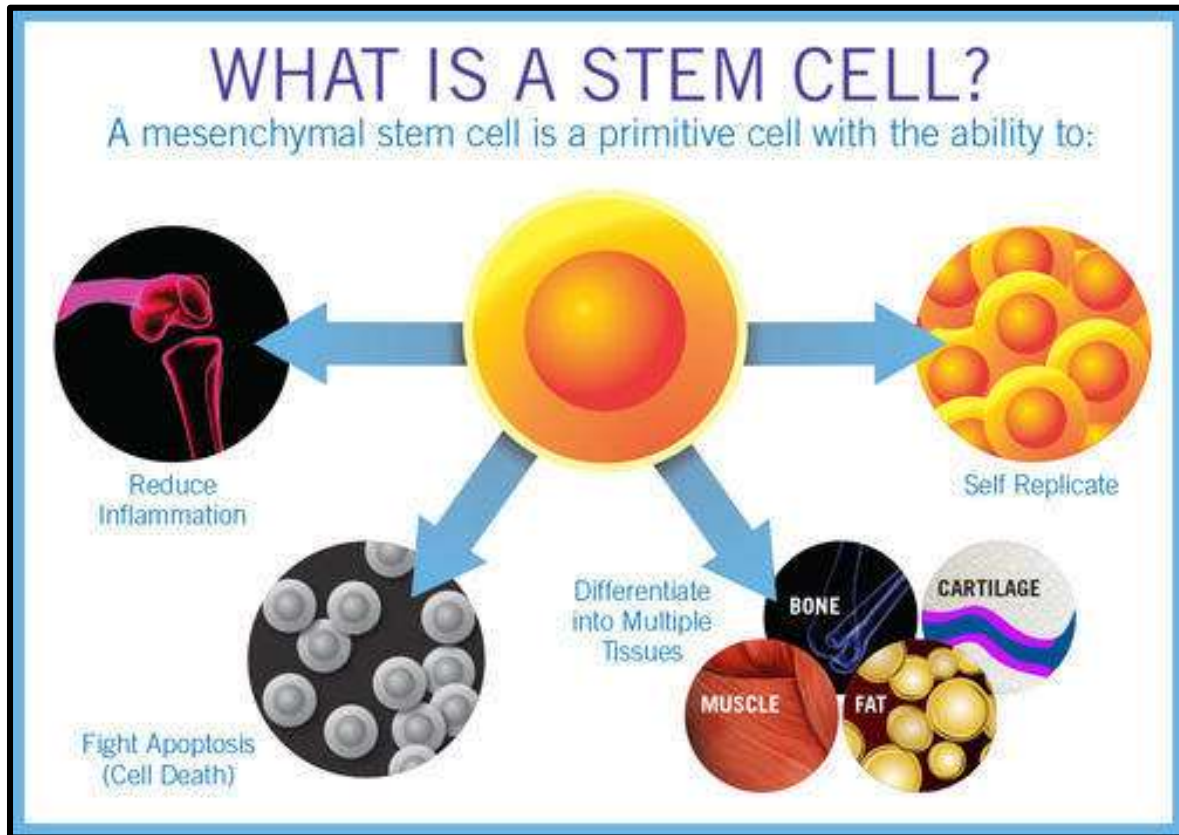
- Minimum Support price (MSP) is that the minimum price set by the govt. actually agricultural products, at that the merchandise would directly be bought from the farmers if the open market costs are however the price incurred.
- MSPs provides a floor for market prices, and ensure that farmers receive an exact “minimum” remuneration so as that their prices of cultivation (and some profit) is also recovered.
- **Crops covered by MSPs include:** 7 forms of cereals (paddy, wheat, maize, bajra, jowar, ragi and barley), 5 forms of pulses (chana, arhar/tur, urad, moong and masur), 7 oilseeds (rapeseed-mustard, groundnut, soyabean, sunflower, sesamum, safflower, nigerseed), 4 industrial crops (cotton, sugarcane, copra, raw jute)

Who decides what the MSP?

- The MSPs are declared by the Union government supported the recommendations of the Commission for Agricultural costs and prices (CACP).
- **While recommending MSPs, the CACP appearance at the following factors:** the demand and supply of a commodity; its worth of production; the value trends (both domestic and international); inter-crop price parity; the terms of trade between agriculture and non-agriculture (that is, the ratio of prices of farm inputs and farm outputs); a minimum of 50 per cent as a result of the margin over the price of production; and so the possible implications of an MSP on shoppers of that product.
- the government does not procure all farm end up at MSPs.
- Actual procurement (at MSP) varies with crop and geography. Also, MSPs haven't got any statutory backing.

Topic 26. STEM CELL THERAPY

Importance for Prelims: Science & Tech



A US patient has become the third person within the world, and also the 1st woman, to be cured of HIV, the deadly virus that causes AIDS exploitation umbilical cord blood.

Umbilical Cord Blood:

- The umbilical cord may be a flexible, tube-like structure that, throughout pregnancy, connects the foetus to the mother.
- Umbilical cord blood may be a made supply of stem cells, and conserving it for future use.
- It contains special cells known as hematopoietic stem cells which will be used to treat some varieties of diseases.
- Hematopoietic stem cells will mature into different types of blood cells within the body. hematopoietic stem cells are derived from bone marrow, peripheral blood, or umbilical cord blood.
- **Stem Cell Therapy:** Stem-cell therapy is that the use of stem cells to treat or stop a unwellness or condition.

- Stem cell therapy, additionally referred to as regenerative drugs, promotes the repair response of pathologic, dysfunctional or dislocated tissue using stem cells or their derivatives. Stem cells will then be deep-rooted into someone.
- **Stem Cells:** Stem cells are the cells from that all alternative cells with specialised functions are generated.
- Under sure conditions within the body or a laboratory, stem cells divide to create a lot of cells known as daughter cells.
- These female offspring cells either become new stem cells (self-renewal) or become specialised cells (differentiation) with a a lot of specific operate, like blood cells, brain cells, cardiac muscle cells or bone cells.
- No alternative cell within the body has the natural ability to get new cell varieties.
- **About HIV:** HIV may be a polymer virus. HIV attacks CD4, a kind of White blood cell (T cells) within the body's system.
- T cells are those cells that move round the body detecting anomalies and infections in cells.
- HIV is transmitted from person to person through bodily fluids together with blood, semen, vaginal secretions, anal fluids and breast milk.

Topic 27. SRI GOVINDARAJA TEMPLE TIRUPATI

Importance for Prelims: Art & Culture

Tirupati wears a festive look as it celebrates 892nd birthday on Thursday.

About Govindaraja Temple:

- Sri GovindarajaPerumal temple (known as Thiruchitrakoodam) has the unique distinction of being set on the world renowned Chidambaram Nataraja (Bhagwan Shiva) temple complicated within the temple town of Chidambaram, Tamil Nadu.
- Along with NilathingalThundamPerumal temple, these are 2 rare Divyadesam Vaishnava shrines that have Bhagwan vishnu along side Bhagwan Shiva as presiding deities.
- The Shaivite King KulothungaChola II is believed to own removed the presiding Govindarajamurti from the shrine in Chidambaram.
- **Sri Govindaraja Temple From Chidambaram to Tirupati:** per inscriptions, it had been on February 24 within the year 1130 that Vaishnavite saint BhagawadRamanuja ordered the foundation stone for the temple The earliest of the records obtainable on this temple at Tirupati belong to the year 1235 A.D once the Chola King, Raja Raja III was ruling the place.
- The temple came into prominence in 1506 A.D. throughout the rule of Saluva dynasty of Vijayanagar and from then onwards different|completely different} rulers in a very different manner developed the temple.
- In the 16th century, kingKrishnappaNayak of Madurai Nayak dynasty, enlarged the Madurai Kingdom.
- He was instrumental in putting in the murti of Govindaraja back within the Chidambaram Nataraja temple.

Topic 28. FDI

Importance for Prelims:Economy



The Union Cabinet is expected to consider a proposal to put Life Insurance Corporation (LIC) at par with public sector banks for foreign direct investment (FDI).

FDI Limits In Different Sectors In India: Sector FDI Limit & Route

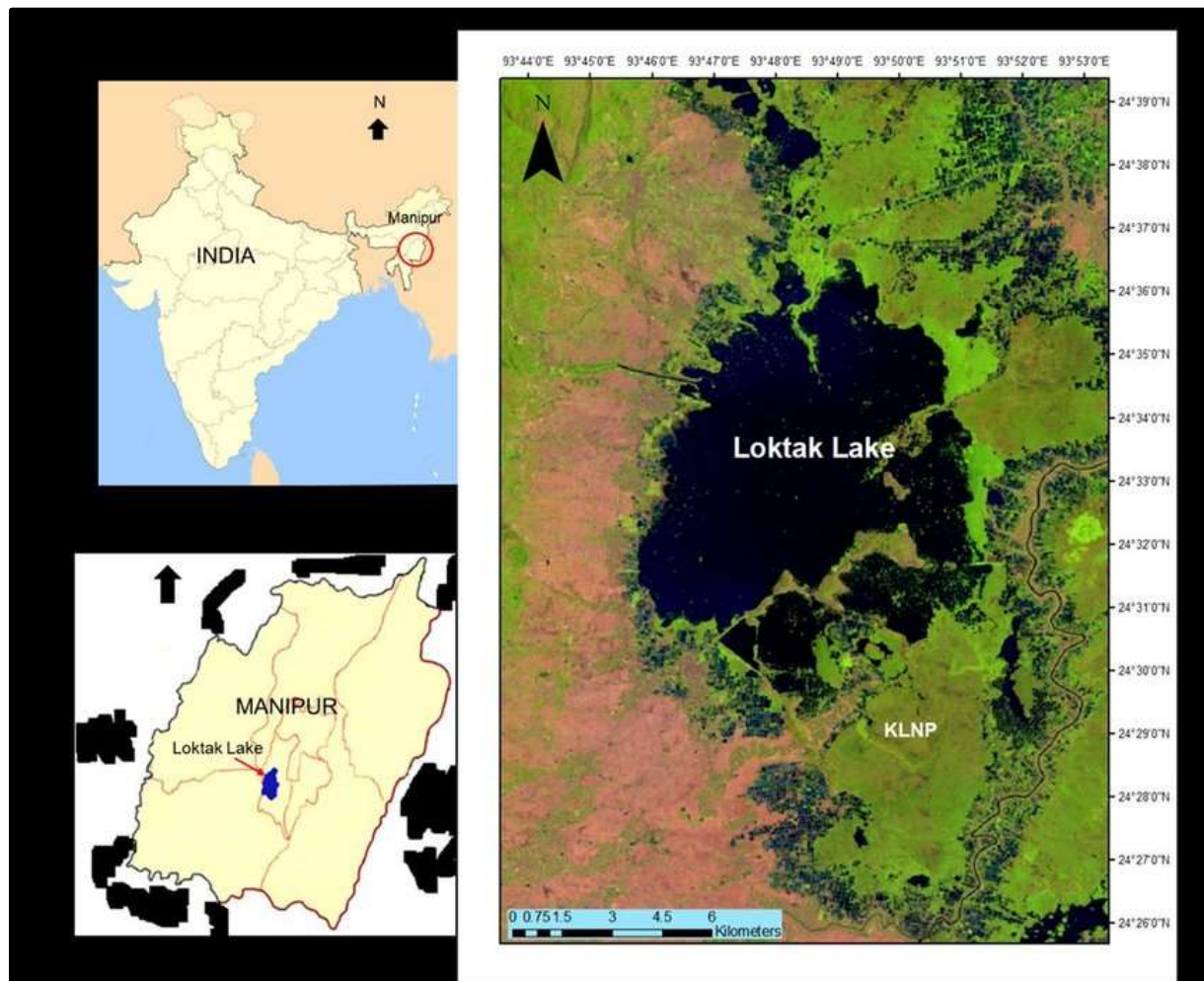
1. Agriculture & Animal Husbandry 100% Automatic
2. Mining (Coal & Lignite) 100% Automatic
3. Petroleum & Natural Gas Exploration 100% Automatic
4. Petroleum & Natural Gas refining by the Public Sector Undertakings (PSU) 49% Automatic
5. Defence Manufacturing Automatic up to 74% Above 74% under Government route in cases resulting in access to modern technology in the country
6. Print Media 26% Government Route
7. **Civil Aviation** – Airports Green Field Projects & Existing Projects 100%

Automatic

8. **Civil Aviation** – Air Transport Services • Scheduled Air Transport Service/ Domestic Scheduled Passenger Airline • Regional Air Transport Service (Foreign Airlines are barred from Investing in Air India)
Automatic up to 49% Above 49% under Government route 100% Automatic for NRIs
9. Telecom Services 100%, Above 49% under Government route
10. Private Security Agencies Automatic up to 49% Above 49% & up to 74% under Government route
11. Single Brand Retail 100%, Automatic up to 49% Above 49% under Government route
12. Multi Brand Retail 51% Under Government Route.
13. Banking- Private Sector Automatic up to 49% Above 49% & up to 74% under Government route
14. Banking- Public Sector 20% Government Route
15. Insurance Companies 74% Automatic Route
16. Insurance Intermediaries 100% Automatic Route

Topic 29. LOKTAK LAKE

Importance for Prelims: Environment



Manipur Assembly Elections 2022: Loktaklake, climate change, carbon footprint feature in party manifestos. About Loktak Lake:

- Loktak Lake is that the largest fresh lake in Northeast India and is known for the phumdis floating over it.
- Phumdis are the heterogeneous mass of vegetation, soil and organic matter at various stages of decomposition.
- It is that the only floating national park in world and is last natural refuge of vulnerable Sangai deer.
- This ancient lake plays a very important role within the economy of province.

- It is a supply of water for irrigation, drinking water provide and hydropower generation.
- Loktaklake was at first selected as a wetland of international importance under the Ramsar Convention in 1990.
- Later it absolutely was also listed under the Montreux Record in 1993.

Topic 30. DUGONG CONSERVATION RESERVE

Importance for Prelims: Environment



The state government had declared that a dugong conservation reserve would be established within the Gulf of Mannar, Palk Bay between India and Sri Lanka, for the conservation of the animals. Declaring a locality as ‘protected’ means that there'll be no human interference in there.

- The dugong (Dugong dugon), additionally referred to as the sea cow, could be a herbivorous mammal grazing on seagrass.
- Dugongs are protected under Schedule I of the life (Protection) Act, 1972 which implies they need the very best level of legal protection under Indian law.
- **Conservation Reserves in India:** it's a locality owned by the authorities adjacent to the national parks and sanctuaries for shielding the landscape, seascape, and habitat of fauna and flora.
- It is managed through a conservation reserve management committee.
- These protected area classes were initially introduced within the life (Protection) amendment Act of 2002 – the amendment to the life Protection Act of 1972.
- The authorities may, once having consultations with the local communities, declare any area owned by the government as a conservation reserve.
- Tirupadaimarathur conservation reserve in tirunelveli, tamilnadu is that the initial conservation reserve established within the country.

Topic 31. HIGH COURT JUDGES

Importance for Prelims: Polity

Union Law Secretary Anoop Kumar Mendiratta on weekday was elevated as a decide of the Delhi high court.

Appointment of high court Judges:

- Article 217 of the Constitution states that the decide of a high court shall be appointed by the President in consultation with the chief justice of India (CJI), the Governor of the State.
- In the case of appointment of a decide aside from the jurist, the jurist of the high court is consulted.
- High Court judges are counseled by a Collegium comprising the CJI and 2 senior-most judges.
- The recommendation is distributed to the Chief Minister, UN agency advises the Governor to send the proposal to the Union Law Minister.
- **Ad-hoc Judges:** The appointment of retired judges was provided for within the Constitution under Article 224A.
- Under the Article, the chief justice of a high court for any State could at any time, with the previous consent of the President, request anyone who has control the office of decide of that court or of the other high court to sit down and act as a decide of the high court for that State.
- **Collegium System:** it's the system of appointment and transfer of judges that has evolved through judgments of the SC, and not by an Act of Parliament or by a provision of the Constitution.
- **Evolution of the Collegium System:** initial Judges Case (1981): It declared that the “primacy” of the chief justice of India (CJI) recommendation on judicial appointments and transfers may be refused for “cogent reasons.”
- The ruling gave the manager importance over the Judiciary in judicial

appointments.

- **Second Judges Case (1993):** SC introduced the Collegium system, holding that “consultation” extremely meant “concurrence”.
- It else that it absolutely was not the CJI’s individual opinion, however an institutional opinion fashioned in consultation with the 2 senior-most judges within the SC.
- **Third Judges Case (1998):** SC on President’s reference expanded the Collegium to a five-member body, comprising the CJI and 4 of his seniormost colleagues (for example for the transfer of HC judges).

Topic 32. TELECOM REGULATORY AUTHORITY OF INDIA (TRAI)

Importance for Prelims:Economy



The Department of Telecommunications (DoT) has urged TRAI to expedite submission of its recommendations on 5G spectrum auctions.

About TRAI:

- The telecom regulatory authority of India (TRAI) was established in 1997 by the telecommunication regulatory authority of India Act, 1997.
- The head workplace of the telecom administrative unit of India (TRAI) is found at New Delhi.
- The TRAI consists of a chairperson, 2 whole-time members and 2 parttime members, all of that are appointed by the govt of India.
- **Functions of TRAI:** The operate of the TRAI is to create recommendations to the central government on matters related to service providers, Revocation of license for non-compliance , Measures to facilitate competition and promote potency within the operation of telecommunication services to facilitate their growth etc.
- Laying down the standards of quality of service to be provided by the

service suppliers.

- Timely and formally notifying the rates at that the telecommunication services among India and out of doors India shall be provided under the TRAI Act, 1997.
- The recommendations of the TRAI aren't binding upon the Central Government.
- **Powers of TRAI:** It will call upon any service supplier to furnish in writing the information or explanation about its affairs because the Authority could need.
- The Authority could appoint one or a lot of persons to create an inquiry in reference to the affairs of any service supplier.
- It is empowered to direct any of its officers or employees to examine the books of accounts or alternative documents of any service supplier.
- The Authority shall have the power to issue such directions to service suppliers because it could consider necessary for correct functioning by service providers.

Topic 33. INDIA- JAPAN MILITARY EXERCISE

Importance for Prelims: Science & Tech

India-Japan joint military drill begins in Belagavi on Sunday.

Dharma Guardian exercise:

- Indian and Japanese armies to start out their annual dharma Guardian exercise in Mysore over the weekend.
- The exercise can begin on February 27 and prolong until March 10 at the Foreign coaching Node in Belgaum, Karnataka.
- The 15th battalion of the Maratha light foot regiment can participate for India, and for Japan, the 30th foot Regiment of Japanese Ground Self Defence Forces (JGSDF) can participate.
- The exercise can enhance the extent of defence co-operation between Indian Army and Japanese Ground Self Defence Forces, that in turn can more foster the bilateral relations between the 2 nations.

Topic 34. UNSC RESOLUTIONS

Importance for Prelims:IR

India, along with China and therefore the UAE, abstained from the UN security council (UNSC) resolution sponsored by the U.S. and Albania on Saturday, that sought to condemn Russian aggression and entailed the immediate withdrawal of Russian military from Ukraine.

- **About UNSC Resolutions:** UN resolutions are unit formal expressions of the opinion or can of UN organs.
- A UN council resolution could be a UN resolution adopted by the fifteen members of the safety Council (UNSC), the United Nations (UN) body charged with “primary responsibility for the upkeep of international peace and security”.
- The UN Charter specifies in Article 27 passing and option on the resolutions.
- **About United Nations SC :** the safety Council was established by the UN Charter in 1945.
- The council is headquartered at New York.
- It is one in every of the six principal organs of the UN.
- The alternative 5 organs of the UN are—the General Assembly (UNGA), the TC, the Economic and Social Council, the International Court of Justice, and therefore the Secretariat.
- Its primary responsibility is to figure to keep up international peace and security.
- The council has 15 members: the 5 permanent members and 10 non-permanent members electoral for biennial terms.
- The 5 permanent members are the U.S., the Russia, France, China and therefore the UK.
- Each year, the overall Assembly elects 5 non-permanent members (out of

10 in total) for a two-year term.

- The 10 non-permanent seats are distributed on a regional basis.
- **Voting Powers:** every member of the safety Council has one vote. selections of the safety Council on matters are created by an affirmative vote of 9 members together with the accordant votes of the permanent members.
- A “No” vote from one in every of the 5 permanent members blocks the passage of the resolution.
- Any member of the UN that isn't a member of the security Council might participate, while not vote.

Topic 35. FASTING & CALORIE RESTRICTION FOR HEALTHY LIFESPAN

Importance for Prelims: Science & Tech

A study of data from 186 countries in the journal The Lancet revealed that obese people now outnumber underweight individuals.

Fasting versus CR:

- fasting Calorie Restriction Fasting is that the willful refrainment from ingestion and typically drinking. There are many ways for fasting.
- In intermittent fasting (IF) is an alternate 24 hour amount with none food with 24 hours of traditional eating.
- In periodic fast quick for one or 2 days followed by 5 days of normal diet.
- In timerestricted feeding (TRF), all daily intake is finished among a 4–12 hour window.
- CR results from re ducing caloric intake by V-J Day to 400th, while not resulting in malnutrition.
- We store glucose within the style of glycogen within the liver, and also the energy demands of the body ar met from this reservoir.
- One day of fast ends up in a 200th decrease in glucose levels and depleted gly - cogen reserves.
- The body switches to a metabolic mode wherever energy is obtained from fat derived ketone bodies and from aldohexose outside the liver.
- y, prolonged nightlong fast promotes a usage method within cells referred to as autophagy.□In the fruit
- Autophagy largely happens at night and is modulated by the body's circadian clock.
- Autophagy is important for the fitness and survival of somatic cell.
- It has additionally been shown to cause a remodelling of the gut

microbiome increasing bacteria diversity.

Topic 36. P-8I- THE INDIAN NAVY'S FRONTLINE MULTI-MISSION AIRCRAFT

Importance for Prelims: Science & Tech

Aviation and defence colossus Boeing delivered India's 12th maritime surveillance and anti-submarine warfare P-8I aircraft on February 24.

- **About P-8I Aircraft:** it's a long-range Maritime reconnaissance and Anti-Submarine Warfare it's an Indian variant of the P-8A Poseidon craft that Boeing company developed as a replacement for the US Navy's ageing P-3 fleet.
- The craft comes with one among the foremost advanced weapon systems within the world, and features a lifetime of around 25 years, or 25,000 hours within the "harshest maritime flight regimes, together with extended operations in icing environments".
- The P-8I will fly as high as 41,000 feet, and features a short transit time, that reduces the scale of the "Area of chance once sorting out submarines, surface vessels or search and rescue survivors".
- It is additionally used for low altitude, and humanitarian, and search and rescue missions.
- The Indian Navy became the primary international client for the P-8 craft in 2009.
- The P-8Is can come back put in with encrypted communication systems since India has currently signed the foundational agreement Communications Compatibility and Security Agreement (COMCASA) with the United States.
- The 1st eight of those aircraft are stationed at INS Rajali in Arakkonam, Tamil Nadu, on the west coast.
- The batch of the extra four are a part of another squadron at INS Hansa in Goa, named Indian service Air Squadron 316.

Topic 37. CHERNOBYL NUCLEAR DISASTER

Importance for Prelims: Science & Tech

Russian troops seize management of Chernobyl nuclear disaster website.

- **Chernobyl Disaster:** On April 26, 1986, the Chernobyl atomic power Plant in today's Ukrayina faced a fore explosion.
- The reactor began to emit hot materials.
- Though, the casualties are lowest, the radioactive materials are still present within the atmosphere and are motility challenges to human survival within the region.
- Due to the accident, many children even nowadays face thyroid, cancer within the regions of Ukrayina, Russia and White Russia.
- The hearth explosion spread vast hot cloud over Russia, Ukrayina and Belarus.
- More than 8.4 million individuals were exposed to hot waves.

What Is the priority now?

- Since the chernobyl is under Russia's management currently, injury to the nuclear waste storage facility may lead to fallout spreading across Ukrayina, Belarus and components of Europe.

Topic 38. ANTARCTIC MELTING

Importance for Prelims:Environment



According to the study, increased human activity is resulting in black carbon pollution, tributary to snow melting, a priority as loss of Antarctic ice accelerates world heating.

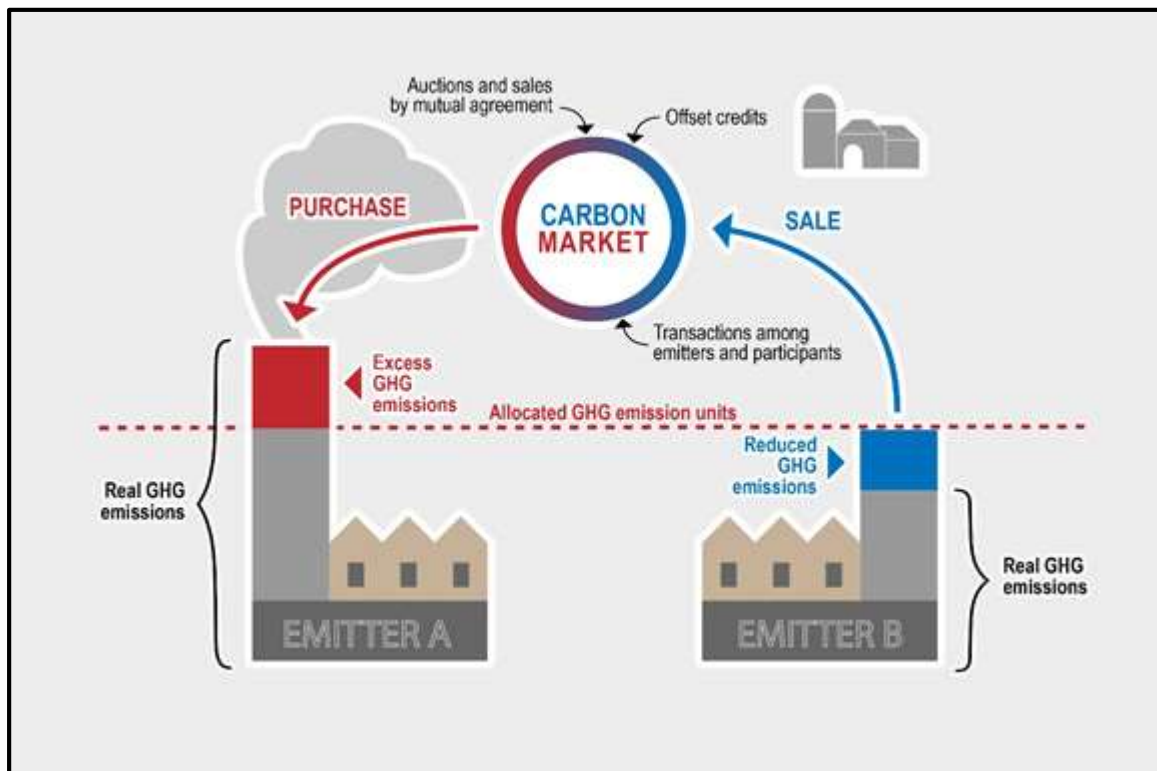
- Black carbon or soot pollution from enhanced human activity at Antarctica's traveler landing sites and analysis facilities is fast the melting of snow on the continent, an international cooperative study has found.
- Antarctica is estimated to be warming thrice as quick because the remainder of the world on average.
- Albedo and antarctica Albedo is that the property of any substance to replicate sunlight.
- Albedo is higher in Snow or Ice.
- On earth, the cloud cover and ice cover act as sources increasing Earth's

albedo.

- Increased soot accumulation would lower the albedo and aid in absorption of sunlight and any surface melting.
- As a lot of ice melts, within the future, it'll expose a lot of land.
- These surfaces are darker than ice, thence lowering the albedo and fascinating a lot of heat and accelerating warming any as a lot of ice melts.

Topic 39. CARBON MARKETS

Importance for Prelims: Environment



The COP-26 Summit at Glasgow in November last finally united on a “rulebook” for 2 new carbon market mechanisms that were created within the 2015 Paris Agreement.

- **About Carbon Markets:** Carbon markets provide buying and marketing of carbon emissions with the target of reducing world emissions.
- Carbon markets under jurisprudence were 1st established beneath the metropolis Protocol (1996) and have become operational in 2000.
- The protocol mandated binding reductions in emissions by developed countries, however not in developing ones, and set up 3 carbon market instruments: Emissions commerce beneath that developed countries might trade abatements prodigious their mandates with others that fell short; Joint Implementation (JI) covering negative carbon generated from individual comes that may well be listed between corporates in developed countries; Clean Development Mechanism (CDM) by that

such credits may well be generated from comes in developing countries and listed to corporates in developed countries.

- **Carbon Markets beneath the Paris Agreement:** The provisions regarding putting in a brand new carbon market ar delineate in Article 6 of the Paris Agreement.
- Article 6.2 permits bilateral arrangements for transfer of emissions reductions.
- Article 6.4 is a few wider carbon market within which reductions will be bought and sold by anyone.
- Article 6.8 provides for creating ‘non-market approaches’ obtainable to countries to realize targets.

Topic 40. BOSPHORUS AND DARDANELLES STRAITS

Importance for Prelims: Geography

In the midst of the Russia-Ukraine crisis, the spotlight has rapt to the Black Sea when Ukrayina urged Turkey to shut the Bosphorus and Dardanelles straits to Russian ships under Monteaux Convention.

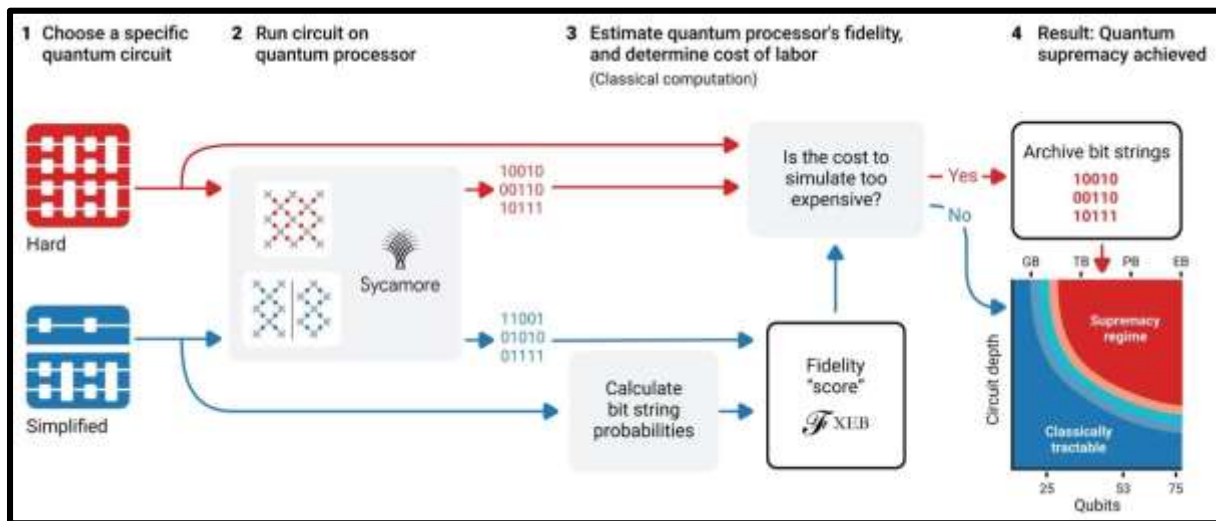
- **Bosphorus and Dardanelles straits:** The straits are referred to as the Turkish Straits or the Black Sea Straits, connect the sea and also the Black Sea via the sea of Marmara.
- The Bosphorus connects the Black Sea with the ocean of Marmara, whereas the Dardanelles connects the sea with the sea of Marmara.
- About 48,000 vessels transit the straits annually, creating this area one in every of the world's busiest maritime gateways.
- The Bosphorus is additionally one in every of the world's most significant chokepoints for the maritime transit of oil.
- **Trade through the black Sea:** Black Sea states — Russia, Ukraine, Bulgaria, Romania and Georgia.
- Black sea could be a major artery for the movement of commodities at the crossroads of Europe and Asia.
- Crude oil, refined oil, agricultural product and iron and steel ar all transported through the Black Sea.
- According to the Bloomberg report, Ukrayina and Russia along account for over 1 / 4 of world wheat exports, nearly a fifth of corn trade and also the bulk of vegetable oil.
- Rich, fertile soils have helped Ukrayina become the second-largest grain shipper.
- Montreux Convention: Signed in 1936, the Montreux Convention relating to the Regime of the Straits offers North Atlantic Treaty Organization member Turkey the management over the Bosphorus and

Dardanelles Straits and regulates the transit of service warships.

- The Convention permissible Turkey to remilitarise the Straits.
- The Montreux Convention guarantees free passage of civilian vessels to use the Turkish straits.
- The accord states that if Turkey is at war, Ankara has the proper to try to to no matter is critical, together with closing the straits.
- If alternative states are at war and Turkey is neutral, the straits are closed for those belligerent countries.
- The Turkish government should also authorise craft if they cross over the straits. Submarines are not allowed to pass the Turkish straits.
- But Black Sea states will build submarines outside the Black Sea and transport them through the straits, and may exit the Black Sea for maintenance by providing adequate notice.

Topic 41. QUANTUM SUPREMACY

Importance for Prelims: Science & Tech



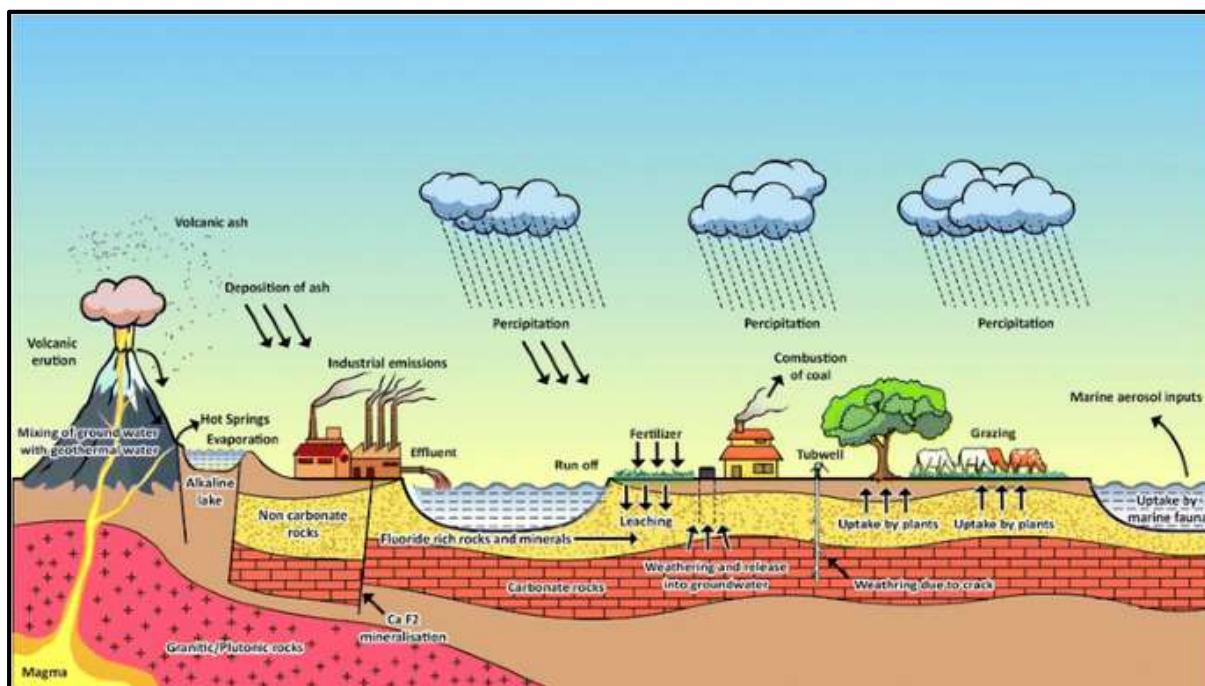
Google and IBM are at odds over 'quantum supremacy'. Google claims to own demonstrated one thing referred to as "quantum supremacy", in a very paper printed in Nature. however a team from IBM has printed their own paper claiming they will reproduce the Google result on existing supercomputers.

- **Quantum Computers:** Quantum computing could be a form of computation that harnesses the collective properties of quantum states, like superposition, interference, and entanglement, to perform calculations.
- The devices that perform quantum computations are called quantum computers.
- Quantum computers represent a brand new manner of process knowledge.
- Instead of storing data in "bits" as 0s or 1s like classical computers do, quantum computers use the principles of physics to store information in "qubits" that may even be in states of 0 and 1 at an equivalent time.
- In theory, this enables quantum machines to perform sure calculations abundant quicker than classical computers.

- Traditional computers work on the idea of the laws of classical physics, specifically by utilizing the flow of electricity.
- A quantum computer, on the opposite hand, seeks to use the laws that govern the behavior of atoms and subatomic particles.
- Quantum Supremacy: In 2012, prof John Preskill coined the term “quantum supremacy”
- It describes the purpose once quantum computers become powerful enough to perform some machine task that classical computers couldn't waste a reasonable timeframe.
- Quantum dominance is an intermediate milestone, one thing to aim for long before it's doable to create massive, general quantum computers.

Topic 42. FLUORIDE CONTAMINATION OF GROUNDWATER

Importance for Prelims: Environment



Continued fluoride contamination of groundwater could be a evident public health issue in central India.

- **Fluoride Contamination:** Fluoride could be a element that's found most often in groundwater and has become one amongst the foremost necessary toxicological environmental hazards globally.
- The prevalence of halide in groundwater is thanks to weathering and action of fluoride-bearing minerals from rocks and sediments.
- Fluoride once ingested in little quantities (1.5 mg/L) might cause pathology.
- Although the surface water is less contaminated, tubewells pump out water that contains high halide content.
- Rajasthan, state, Telangana, Tamil Nadu, Gujarat, and West Bengal are the comparatively high-fluoride-contaminated states in India.
- Dark yellow pigmentation of their teeth – a typical visible sign of excessive body process of halide.

- Fluoride contamination ends up in broken joints, bone deformities, flurosis.

Topic 43. MILKY WAY'S SUPERMASSIVE BLACK HOLE EXPLODED
3.5 MILLION YEARS AGO: STUDY

Importance for Prelims: Science & Tech



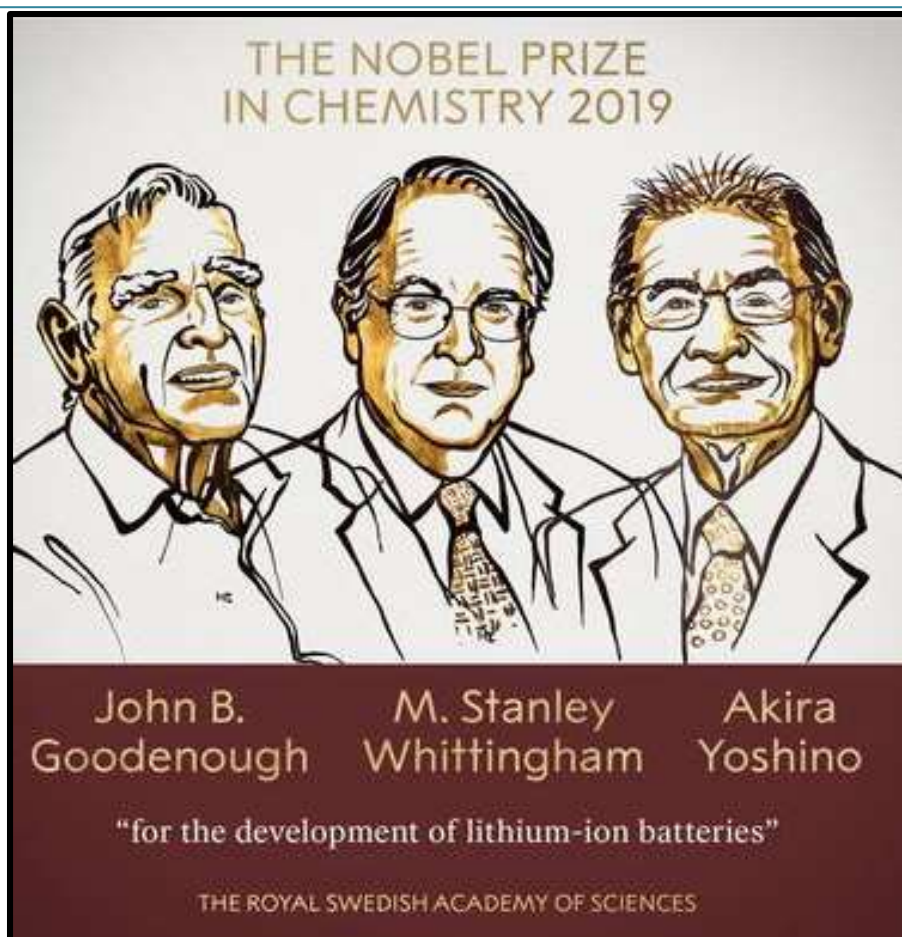
The black hole, called Sagittarius A, or Sgr A* (pronounced Sagittarius Astar) — concerning 4.2 million times a lot of large than the Sun — exploded because of nuclear activity, consistent with a team of scientists at Australia's ARC Centre of Excellence for All Sky uranology in 3 Dimensions (ASTRO 3-D).

- **About Sagittarius A:** it's at the middle of the Milky Way System galaxy that has four million times the mass of the sun.
- A supermassive region that sits 26,000 light-years aloof from Earth, close to the Galactic Center, or the middle of the Milky Way System.
- It is one among the few black holes wherever we are able to witness the flow of matter near .
- **About Black Holes:** Black holes are terribly dense objects possessing gravitative pulls therefore powerful even light-weight cannot escape them. It refers to some extent in area wherever the matter is therefore compressed on produce a gravity field from that even light cannot escape.
- The construct was theorized by physicist in 1915 and therefore the term 'black hole' was coined within the mid-1960s by yankee physicist John Archibald Wheeler.
- The black holes belong to 2 categories: One class ranges between many solar lots and tens of solar lots.

- These are thought to make once large stars die.
- The different class is of supermassive black holes.
- These vary from many thousands to billions of times that of the sun from the solar system to that Earth belongs.

Topic 44. CHE MISTRY NOBEL FOR DEVELOPMENT OF LITHIUM-ION BATTERIES

Importance for Prelims: Science & Tech



An American man of science, a British-American chemist and a Japanese chemist on October 9, 2019, won the award in Chemistry 2019 "for the event of lithiumion batteries.

- **About lithium particle Batteries:** A lithium-ion battery or Li-ion battery could be a kind of reversible battery.
- The lithium-ion batteries are based mostly upon lithium-ions flowing back and forth between the anode and cathode.
- Li-ion batteries use an intercalated metallic element compound as one conductor material, compared to the lithium metallic element employed in a non-rechargeable metallic element battery.
- Intercalation is that the reversible inclusion or insertion of a molecule into materials with bedded structures.
- The "lightweight, reversible and powerful battery" these days powers everything from mobile phones to laptops and electrical vehicles.
- They have arranged the inspiration of a wireless, fossil fuel-free society, and are of the best profit to humankind.
- **Disadvantages of Li-ion Batteries:** Long charging times.
- Expensive to manufacture. issues of safety as instances of batteries catching fires are there.

Topic 45. SWIFT

Importance for Prelims:Economy

The European Union, US, UK and allies have united to exclude variety of Russian banks from Swift, an international payment system utilized by thousands of financial establishments.

What is Swift?

- Swift is that the world monetary artery that permits the sleek and speedy transfer of money across borders.
- It stands for Society for Worldwide Interbank monetary Telecommunication. Created in 1973 and primarily based in Belgium, Swift links 11,000 banks and establishments in additional than two hundred countries.
- It may be a form of instant messaging system that informs users once payments are sent and arrived.

Who owns and controls Swift?

- Swift was created by yank and European banks.
- The network is currently jointly-owned by more than 2,000 banks and monetary institutions.
- It is overseen by the national bank of Belgium, in partnership with major central banks round the world.
- Swift helps create secure international trade doable for its members.

Topic 46. BHAKRA BEAS MANAGEMENT AMENDMENT RULES

Importance for Prelims: Environment

The Union Power Ministry has created a change to the rules governing the appointment of Member Power and Member Irrigation on Bhakra Beas Management Board (BBMB) from Punjab and Haryana, severally, thereby removing the stipulation that these 2 appointments need to be crammed from the two states only.

- **Bhakra Beas Management Rules, 1974:** consistent with the Bhakra Beas Management Board Rules, 1974, the member (power) in BBMB was from Punjab and therefore the member (irrigation) was from Haryana.
- As per the Indus Waters accord of 1960, the waters of Ravi, Beas and Sutlej area unit allotted to India and are offered to be utilized for irrigation functions at intervals the country.
- On the Beas and Sutlej, Bhakra Dehar and Beas power comes were made.
- The BBMB controls these comes, and therefore the expenditure is shared by the states within the ratio of their shares.
- Under the Punjab reorganisation Act 1966, the share from BBMB was divided between Punjab and Haryana within the ratio of 58:42, with some share to Rajasthan and Himachal Pradesh subsequently added.
- Punjab and Haryana are the 2 major beneficiaries.