

GES REPORTER

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By

Saurabh Pandey

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India and SDGs



- The SDGs framework sets targets for 231 unique indicators across 17 SDG goals related to economic development, social welfare, and environmental sustainability, to be met by 2030.
- The good news is that India is 'On Target' to meet 14 of the 33 SDGs, including indicators for neonatal and under-five mortality, full vaccination, improved sanitation, and electricity access, all of which have substantially improved in the last five years.
- Unfortunately, the national 'On Target' designation does not apply equally across all districts.
- Indicators such as eliminating adolescent pregnancy, reducing multidimensional poverty, and women having bank accounts have improved across a vast majority of the districts between the years 2016 and 2021.
- Of concern, for 19 of the 33 SDG indicators, the current pace of improvement is not enough to meet SDG targets.
- Despite a national policy push for clean fuel for cooking, more than two-thirds (479) of districts remain 'Off Target'. Similarly, some 415 and 278 districts are 'Off Target' for improved water and handwashing facilities, respectively.
- Of heightened concern are SDG indicators for women's well-being and gender inequality.
- No district in India has yet succeeded in eliminating the practice of girl-child marriage before the legal age of 18 years.
- Lessons from the COVID-19 approach.
- First, strong and sustained political leadership supported by a responsive administrative structure at all levels, from national to the district level, was critical to the success both of India's COVID-19 vaccination program and its efficient rollout of a comprehensive relief package.
- Second, India's success with COVID-19 was largely possible both because of the existing digital infrastructure, as well as new, indigenous initiatives such as the

Co-WIN data platform, and the Aarogya Setu application.

- Finally, a targeted SDG strategy delivered at scale must be executed with the same timeliness of India's COVID-19 relief package



THE HINDU

Urbanization and challenges

What role does urbanisation play?

- Cities have witnessed a sharp increase in the stray dog population, which as per the official 2019 livestock census stood at 1.5 crore. However, independent estimates peg the number to be around 6.2 crore.
- The number of dog bites has simultaneously doubled between 2012 and 2020. India also shoulders the highest rabies burden in the world, accounting for a third of global deaths caused due to the disease.
- In 2015, a study conducted in 10 Indian metro cities found a strong

link between the human population, the amount of municipal and food waste generated, and the number of stray dogs in the cities.

- It argued, "In effect, the present mode of urbanization and paradigm of development innately promotes urban sprawls, slums, disparity.
- With the development of cities, managing solid waste has become a daunting challenge," and the "unconfined and unmanaged leftovers" end up aiding the proliferation of stray dogs.
- A study published in 2016 found that the prevalence of dog bites was higher in urban slums usually located in close proximity to dumping sites than in rural slums.

How has India managed the problem?

- India's response to the "stray dog menace" has relied upon the Animal Birth Control (ABC) program, through which municipal bodies trap, sterilize, and release dogs to slow down the dog population.
- The second anchor was rabies control measures, including vaccination drives. But implementation suffers from low awareness around the health implications of dog bites, irregular supply of vaccines, delay in seeking

treatments, and a lack of national policy, experts say.



THE HINDU

Barsu project

What is the Barsu refinery project?

- The project, which is expected to have a capacity of 60 million tonnes per annum, is a joint venture between Saudi Aramco, Abu Dhabi National Oil Company (ADNOC), Indian Oil Corporation Limited, Bharat Petroleum Corporation Limited, and Hindustan Petroleum Corporation Limited.
- The project was initially mooted in 2014 and is estimated to cost around rupees three lakh crore.
- Besides fuel, the project also proposes to develop various downstream petrochemicals to meet India's fast-growing petrochemical demand.
- How have the villagers reacted? Hundreds of residents from Barsu-Solgaon and neighboring villages are protesting the government's decision as they are concerned about the potential

impact on the environment and the livelihoods of local communities.

- The project site is in a region that is ecologically sensitive, with several species of flora and fauna endemic to the area.
- The Konkan region has large mango orchids as well as jackfruit and cashew plantations.
- The villagers also expressed concern about the potential health hazards posed by the refinery and petrochemical unit, which is expected to emit a large amount of pollutants.

THE HINDU

India and Maldives

- The Maldives is one of India's key maritime neighbors in the Indian Ocean region and the overall bilateral ties, including in the areas of defense and security, have been on an upward trajectory in the last few years.
- India's decision to provide military platforms to the Maldives came amid China's persistent efforts to expand its overall influence in the region.
- "India's vision of SAGAR (Security and Growth for All in the Region) along with its 'Neighbourhood First' policy as well as Maldives' 'India First' policy seek to work together to

jointly develop the capabilities within the Indian Ocean region.



THE HINDU

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Governor Discretion

- This position has been fortified by a seven Judge Bench of the Supreme Court in *Shamsher Singh & Anr vs State Of Punjab (1974)*, wherein it was held that the discretion of the Governor is extremely limited and, even in such rare cases shall act in a manner that is not detrimental to the interest of the state.
- Furthermore, the Supreme Court has repeatedly held that the Governor shall only act on the aid and advice of the Council of Ministers.
- Over time, matters involving an inexplicable delay in exercising powers by various authorities have been brought under the ambit of judicial review by constitutional courts.
- The Supreme Court, in *Keisham Meghachandra Singh vs The Hon'ble Speaker Manipur (2020)*, issued a writ of mandamus to the Speaker of the Meghalaya Legislative Assembly to decide on the disqualification petitions under the 10th Schedule of the Constitution within a period of four weeks.

THE HINDU

China Amends Anti espionage Law

What is China's anti-espionage law?

- The recent amendments are to China's 2014 anti-espionage law. Article 1 of the law says the idea behind the legislation is "to prevent, stop and punish espionage conduct and maintain national security."
- The broad ambit of what constitutes "national security" as well as the law's focus on involving a "whole of society" approach to counter-espionage, including from Chinese enterprises and organizations, evoked concerns among both rights groups and foreign enterprises in China.
- One article of the law mandates that "all State organs, armed forces, political parties, and public groups, and all enterprises and organizations, have the obligation to prevent and stop espionage activities and maintain national security."
- Another article encourages ordinary citizens to take part in national anti-espionage efforts by reporting to the authorities any activity deemed to be suspicious and endangering national security.

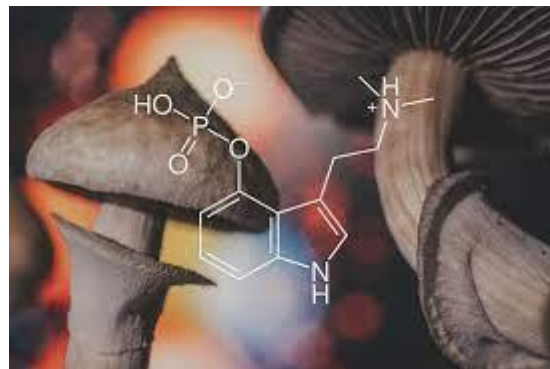
- The latest amendments are the first changes since 2014 and will take effect on July 1, 2023.
- They have further broadened the law's scope, with one of the changes declaring that "all documents, data, materials, and items related to national security and interests" will be protected on par with what are deemed state secrets.
- The definition of espionage has also been expanded to include cyber-attacks.
- Essentially, the transfer of any information deemed by authorities to be in the interest of what they define to be "national security" will now be considered an act of espionage.

THE HINDU

Psychedelics

- Psychedelics are a group of drugs that alter perception, mood, and thought processing while a person is still clearly conscious. Usually, the person's insight also remains unimpaired.
- Psychedelics are non-addictive, non-toxic, and compared to illicit drugs, they are less harmful to the end user. In India, the Narcotic Drugs and Psychotropic Substances Act 1985 prohibits the use of psychedelic substances. Ketamine, a dissociative

anesthetic with psychedelic properties, is used under strict medical supervision, for anaesthesia and.



THE HINDU

Terror and technology

- The Union government has instructed service providers to ban 14 applications in Jammu and Kashmir, following recommendations by the Union Home Ministry, officials said.
- Most of these apps are communication platforms that allow encrypted messaging, which, the government said, were used by terror organizations in the region.

THE HINDU

India selling Russian oil

- India leads five countries named as the "Laundromat" countries that buy Russian oil and sell processed products to European countries, thus side-stepping European sanctions against Russia.

- The report also accused Indian sellers and European buyers of possibly “circumventing sanctions” by selling crude products from a refinery in Gujarat that is co-owned by Russian oil company Rosneft.
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THE HINDU



AIME

- In a step further in the expanding India-ASEAN (Association of South East Asian Nations) military cooperation, the maiden ASEAN-India Maritime Exercise (AIME) is set to begin on Tuesday, with war games in the South China Sea.



Article 142

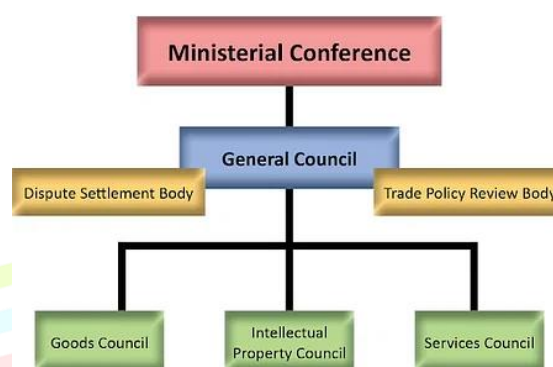
- Leaning on the “guiding spirit” of Article 142(1) of the Constitution to do “complete justice” in any “cause or matter”, a Constitution Bench said it could use this extraordinary discretionary power to grant a divorce by mutual consent to couples trapped in bitter marriages. It also aims to spare couples the “agony and misery” of waiting six to 18 months for a local court to annul it, as stipulated under Section 13B of the Hindu Marriage Act, 1955.
- The Court said it could use Article 142 to quash pending criminal or legal proceedings, be it over domestic violence or dowry, against the man or woman. Continuing in this strain, the Bench said the Supreme Court could grant a divorce on the grounds of an “irretrievable breakdown of marriage” if the “separation is inevitable and the damage is irreparable”.
- Under the Hindu Marriage Act, an irretrievable breakdown of marriage is not yet a ground for divorce.

THE HINDU

India and WTO



Structures of WTO



- On the complaints brought by the European Union (EU), Japan, and Taiwan, three World Trade Organization (WTO) dispute settlement panels have found India’s tariffs on certain information and communication technology (ICT) products such as mobile phones inconsistent with India’s WTO obligations.
- Specifically, the panels concluded that India has violated Article II of the General Agreement on Tariffs and Trade (GATT) because India’s tariffs breach its Goods Schedule.
- Since one of the central objectives of the WTO is to boost transparency and predictability in the multilateral

trading order, WTO member countries are under a legal obligation not to impose tariff rates in excess of their 'bound' or maximum tariff rates committed in their Goods Schedule.

- The Goods Schedules are based on the World Customs Organization's classification system, which catalogues traded products with specific names and numbers.
- This is also known as the Harmonized System of Nomenclature (HSN). Due to the continuous emergence of new products owing to technological innovations, the HSN system is regularly updated to reflect new products, also known as 'transposition'.
- To justify higher tariff rates, India argued that its binding tariff commitments on ICT products are contained in the WTO Ministerial Declaration on Trade in Information Technology Products (ITA Agreement), which India joined in 1997. The ITA Agreement, adopted in 1996, is an arrangement through which select WTO member countries agree to eliminate duties on IT products.
- However, the commitments under the ITA become binding on a country under Articles II.1(a) and (b) of GATT only if they are incorporated in the

Goods Schedule. Accordingly, the panels held that India's Goods Schedule, not the ITA, is the source of India's legal obligations on tariffs, including on products covered by the ITA.

- Accordingly, the panels have recommended that India reduce its tariff rates and make them compatible with its Goods Schedule, but it is unlikely that India will comply. Compliance would mean dismantling the high protective tariff wall that India has erected hoping it will boost domestic manufacturing of ICT products.
- In fact, India, relying on Article 17 of the WTO's Dispute Settlement Understanding (DSU), is likely to appeal against the panel ruling. However, the Appellate Body that hears appeals has ceased to exist since 2019 because the United States has been blocking the appointment of the body's members. Thus, India's appeal will go into the void.

THE HINDU

Case of Blinkit (gig workers)

- The Blinkit strikes began when the company rolled out its new payout structure for delivery executives, under which the minimum payout

per delivery was slashed to ₹15 from ₹25.

- Gig workers refer to workers outside of the traditional employer-employee relationship.
- Whether gig workers should be categorized as 'employees' or as 'independent contractors' has been a heated debate.
- A 2022 report by Fair Work India, an international research project, highlighted the deplorable working conditions of the employees of digital labor platforms in India and the need for statutory affirmation of the rights of gig workers.
- The Ministry of Labour and Employment introduced the Code on Social Security, 2020 which brings gig workers within the ambit of labor laws for the first time. Under section 2(35) of the Code, a 'gig worker' is defined as a person who performs work or participates in a work arrangement and earns from such activities outside of a traditional employer-employee relationship'.
- The Code defines platform work as a work arrangement outside of a traditional employer-employee relationship in which organizations or individuals use an online platform to access other organizations or individuals to solve specific problems or to provide specific services" in exchange for payment.
- Although the Code recognizes 'gig workers', it distinguishes between such workers and employees.
- While employees have benefits such as gratuity, employee compensation, insurance, provident fund, and maternity benefits, the Code stipulates that Central and State governments must frame suitable social security schemes for gig workers on matters relating to health and maternity benefits, provident funds, and accident benefits among others.
- The Code also mandates the compulsory registration of all gig workers and platform workers to avail of the benefits under these schemes.

THE HINDU

Golden Globe race

- Abhilash Tomy, former Commander in the Indian Navy who became the first Indian to go around the world on a sailboat solo and unassisted back in 2013, has now attained another record of completing a solo circumnavigation under even more grueling circumstances when he made a podium finish at the Golden Globe Race (GGR), 2022, on April 29.

What is GGR?

- The Golden Globe Race is a non-stop, solo, unassisted yacht race around-the-world which was held for the first time in 1968-69. Just one of the nine participants 30-year-old British sailor Robin Knox Johnston made it to the finishing point sailing a boat named Suhaili which was built in India.
- The second edition of the race was held 50 years later, in 2018, when Tomy threw his hat in the ring.
- One of the conditions was that the contestants would use boats designed to prescribed premodern specifications and would not be allowed to use any modern navigational gear.
- They would have to rely entirely on sextants and paper charts. To be more specific, anything that wasn't available in 1968 would not be allowed.
- Satellite phones would be available for extremely restricted use, up to four short messages a day, and use of the GPS chart plotter carried in a sealed box (for emergency) would lead to disqualification from the race.
- And the sailing would be along a stipulated route, rounding the three great capes, the Cape of Good Hope

in South Africa, Cape Leeuwin in Australia, and Cape Horn in Chile.



THE HINDU

De-dollarisation and world order

- De-dollarization refers to the replacement of the U.S. dollar with other currencies as the global reserve currency.
- A reserve currency refers to any currency that is widely used in cross-border transactions and is commonly held as reserves by central banks.
- Countries have tried to dethrone the dollar as the global reserve currency for many decades now for various reasons.
- But of late, attempts to de-dollarise have picked up pace in the aftermath of Russia's invasion of Ukraine last year.
- The U.S. imposed several sanctions that restricted the use of the U.S. dollar to purchase oil and other goods from Russia, and this has been

seen by many countries as an attempt to weaponized the dollar.

- Since international transactions carried out in the U.S. dollar are cleared by American banks, this gives the U.S. government significant power to oversee and control these transactions.
- Currently, the Chinese yuan is seen as the primary alternative to the U.S. dollar owing to China's rising economic power.
- Critics of the U.S. dollar believe that the global reserve currency status gives it unfair privileges over other countries, thus justifying de-dollarization attempts by many countries
- Others point to the expansionary monetary policy adopted by the U.S. Federal Reserve over the decades to argue that this could threaten the U.S. dollar's status as a global reserve currency



THE HINDU





EU artificial intelligence act

Why regulate artificial intelligence?

- As artificial intelligence technologies become omnipresent and their algorithms more advanced capable of performing a wide variety of tasks including voice assistance, recommending music, driving cars, detecting cancer, and even deciding whether you get shortlisted for a job the risks and uncertainties associated with them have also ballooned.
- European Parliament reached a preliminary deal this week on a new draft of the European Union's ambitious Artificial Intelligence Act,

What does the draft document entail?

- The draft of the AI Act broadly defines AI as "software that is developed with one or more of the techniques that can, for a given set of human-defined objectives, generate outputs such as content, predictions, recommendations, or decisions influencing the environments they interact with".
- It identifies AI tools based on machine learning and deep learning, knowledge as well as logic-based and statistical approaches.

- The Act's central approach is the classification of AI tech based on the level of risk they pose to the "health and safety or fundamental rights" of a person.
- There are four risk categories in the Act unacceptable, high, limited, and minimal.
- The Act prohibits using technologies in the unacceptable risk category with little exception. These include the use of real-time facial and biometric identification systems in public spaces; systems of social scoring of citizens by governments leading to "unjustified and disproportionate detrimental treatment"; subliminal techniques to distort a person's behavior; and technologies that can exploit vulnerabilities of the young or elderly, or persons with disabilities.
- AI is used in healthcare, education, employment (recruitment), law enforcement, justice delivery systems, and tools that provide access to essential private and public services (including access to financial services such as loan approval systems).
- The Act envisages establishing a EU-wide database of high-risk AI systems and setting parameters so that future technologies or those

under development can be included if they meet the high-risk criteria.

- Before high-risk AI systems can make it to the market, they will be subject to strict reviews known in the Act as ‘conformity assessments’ algorithmic impact assessments to analyze data sets fed to AI tools, biases, how users interact with the system, and the overall design and monitoring of system outputs.
- Lawmakers now target the use of copyrighted material by companies deploying generative AI tools such as OpenAI’s ChatGPT or image generator Midjourney, as these tools train themselves from large sets of text and visual data on the internet. They will have to disclose any copyrighted material used to develop their system.



- General-purpose artificial intelligence systems (GPAIS).
- Artificial general intelligence (AGI) is a type of hypothetical intelligent agent.

- The AGI concept is that it can learn to accomplish any intellectual task that human beings or other animals can perform.
- Alternatively, AGI has been defined as an autonomous system that surpasses human capabilities in the majority of economically valuable tasks.

THE HINDU

Coast Guard harbour

- Defence Minister Rajnath Singh and his Maldivian counterpart, Mariya Didi, on Wednesday, laid the foundation stone for the Maldives National Defence Forces Coast Guard ‘Ekatha Harbour’.
- The development of the Coast Guard Harbour and repair facility at Sifavaru is one of the biggest grant-in-aid projects in India.
- The handing over of these vessels is in line with India’s vision of Security and Growth for All in the Region (SAGAR) which seeks to work together with and jointly develop the capabilities of friends and partners for a safe, secure, prosperous, and stable Indian Ocean Region.



THE HINDU

Why cyclone in Bay of Bengal?

- The Bay of Bengal has seen nearly five times the number of tropical cyclones than the Arabian Sea in the post-monsoon period.
- The higher frequency of cyclones in the Bay can be attributed to frequent low pressures created by the warm water of the ocean.
- The Bay is concave or shallow where strong winds push water up, helping in the formation of storm systems.
- The Bay of Bengal is shaped like a trough takes it more conducive for storms to gain force. Moreover, the high sea surface temperature makes matters worse,
- The Bay gets more rainfall with sluggish winds and warm air currents around it that keep temperatures relatively high all year.
- .Lack of landmass between the Pacific Ocean and the Bay causes cyclonic winds to move into the coastal areas causing heavy rainfall.

- The absence of air movements from north-western India towards the Bay in the post-monsoon phase is also another reason for the chances of cyclones in the Bay of Bengal.
- The constant inflow of fresh warm water from perennial rivers like the Brahmaputra and the Ganges makes it further impossible to mix with the cooler water below.
- The threshold value for sea surface temperatures for the formation of cyclones is 28°C, but it is 30°C-32°C over the Bay of Bengal, Arabian Sea, and Indian Ocean. The sea surface temperature of the Bay is higher than the Arabian Sea.
- Based on long-period records, more than 60% of Bay cyclones make landfall in various parts of the Indian east coast.

THE HINDU

NOTTO

- National Organ and Tissue Transplant Organization (NOTTO) is a National level organization set up under the Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India located on the 4th and 5th Floor of the Institute of Pathology (ICMR) Building in Safdarjung Hospital New Delhi. It has the following two divisions:

- "National Human Organ and Tissue Removal and Storage Network"

"National Biomaterial Centre".

- This has been mandated as per the Transplantation of Human Organs (Amendment) Act 2011.
- The network will be established initially for Delhi and gradually expanded to include other States and Regions of the country.
- Thus, this division of the NOTTO is the nodal networking agency for Delhi and shall network for the Procurement Allocation and Distribution of Organs and Tissues in Delhi.
- The National Network division of NOTTO would function as the apex center for All India activities of coordination and networking for procurement and distribution of Organs and Tissues and registry of Organs and Tissues Donation and Transplantation in the country.
- The following activities would be undertaken to facilitate Organ Transplantation in the safest way in the shortest possible time and to collect data to develop and publish the National registry.

THE HINDU

H5N1

- Housing one of the largest livestock reserves across the world, India is at "risk and vulnerable" to the ongoing outbreaks of avian influenza (H5N1) worldwide, a worry compounded by the threat of mammalian transmission, officials have said.
- "Across the world, the virus is being detected among wild birds and other species, which makes the chance of it mutating and becoming harmful greater,"
- H5N1, a highly pathogenic subtype of avian influenza,



THE HINDU

Climate change adaptation

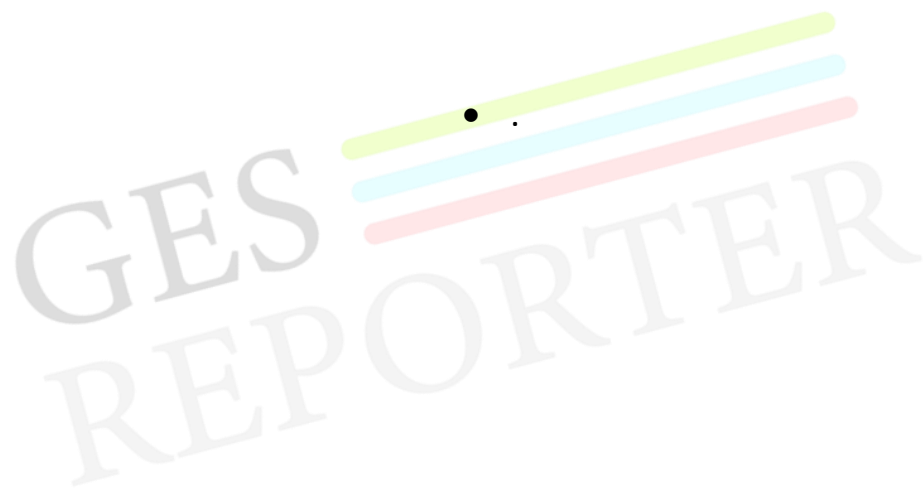
- The cumulative total expenditure for adapting to climate change in India is estimated to reach ₹85.6 lakh crore (at 2011-12 prices) by 2030, the Reserve Bank of India (RBI).
- India's goal of achieving the net zero target by 2070 would require an accelerated reduction in the energy intensity of GDP by about 5%

annually and a significant improvement in its energy mix in favor of renewables to about 80% by 2070-71

- India's green financing requirement is estimated to be at least 2.5% of GDP annually till 2030 to address the infrastructure gap caused by climate events, and the financial system may have to mobilize adequate resources and also reallocate current resources to contribute effectively to the country's net-zero targets.

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India as president of G20 and SOC and challenges



India as presidency of G20 and SCO

- Priorities listed by India as signifying its presidency, viz., climate change, clean energy, sustainable developmental programs, and reform of multilateral institutions, are likely to take a back seat, given the deteriorating global situation.
- Distrust between the two camps led by the United States and China/Russia, respectively, leaves little scope for countries such as India that have not declared their allegiance to either camp.
- For India, apart from the war clouds on the horizon in Europe and tensions in the East Pacific, there are several issues of deepening concern.
- Foremost is how to deal with a rampaging China, currently on a major diplomatic-cum-strategic offensive across Asia, especially West Asia.
- China is seeking to widen the arc of conflict with India.
- Currently, China is targeting India for going closer to the U.S. and the Western bloc, for its partnership in the Quad (India, Australia, Japan, the U.S.), as well as its participation in maritime surveillance exercises with the U.S., Japan, and Australia.
- China is also actively engaged in seeking new friends in India's extended neighborhood, in a bid to limit India's influence in this region.
- West Asia, once a region where India's influence was preponderant, appears to be fast yielding to China's muscular and diplomatic offensive. Notwithstanding India's attempts to reach out to erstwhile friends such as Egypt.
- It is well aware of China's ability to embark on hybrid warfare, including the adoption of cyber tactics, and engage in the 'politics of water' by re-directing the Himalayan Rivers.
- India has, meanwhile, lost all traction with the Taliban in Afghanistan. Pakistan and Sri Lanka, to different degrees, represent 'worst-case scenarios.'
- With the Russia-China strategic relationship getting stronger and both countries openly giving vent to their belief in the utility of such a

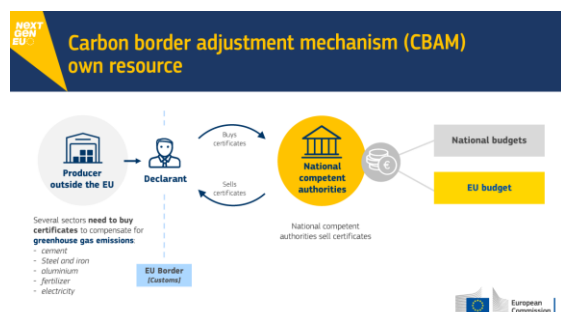
relationship, strains are inevitable in India-Russia relations.

- Russia's unequivocal attack on the Quad during the SCO Defence Ministers meeting in New Delhi recently is a pointer to the winds of change that are becoming evident.
- In the meantime, other pacts involving Russia, such as the Tripartite Russia-India-China platform and BRICS, have lost much of their dynamism.

THE HINDU

EU carbon border tax

- The EU plans to introduce a Carbon Border Adjustment Mechanism (CBAM) that will entail a monitoring mechanism for imports from producers deploying non-green
- Technologies starting this October and a tax levy from January 2026. This is likely to hit Indian metal and engineering products' exports to the EU.



This infographic explains the EU Green Deal's carbon border tax. It features three circular icons: a Euro symbol with a lightbulb, a Euro symbol with a document, and a green checkmark. The text states: 'EU importers of goods covered by the CBAM registers with national authorities where they can also buy CBAM certificates. Certificates are priced based on weekly ETS allowances.' It then says: 'EU importer declares the emissions embedded in its imports and surrenders the corresponding number of certificates each year.' Finally, it notes: 'If importers can prove that a carbon price has already been paid during the production of the imported goods, the corresponding amount can be deducted.' The hashtag #EUGreenDeal and the European Commission logo are included.

THE HINDU

Rare diseases

This infographic provides key facts about rare diseases. It includes the following statistics:

- RARE DISEASE:** Any disease, disorder, illness or condition affecting fewer than 200,000 people in the United States is considered rare.
- Most rare diseases are genetic or have a genetic component.
- More than 90% of rare diseases are without an FDA-approved treatment.
- For many rare diseases, signs may be observed at birth or in childhood.
- There are more than 500 types of rare cancers.
- ALL PEDIATRIC CANCERS are rare.
- There are approximately 7,000 RARE DISEASES.
- It's estimated that 25-30 MILLION AMERICANS (almost 1 in 10) have rare diseases.
- MANY RARE DISEASES result in premature deaths of infants and young children, or are fatal in early childhood.

 The infographic also includes the NORD RARE INSIGHTS logo and the website rarediseases.org.

This infographic details how India categorizes rare diseases into three groups:

- Group 1:** Disorders amenable to one-time curative treatment. Treated with stem cell transplantation or organ transplantation.
- Group 2:** Diseases requiring long term or lifelong treatment with relatively low cost. Managed with special dietary formulae or food for special medical purposes. Amenable to hormones or specific drugs.
- Group 3:** Diseases for which definitive treatment is available but challenges are to make optimal patient selection for benefit, very high cost and lifelong therapy.

 The infographic features various medical icons and the logo for 'policycontrol'.

THE SCENARIO IN INDIA

FROM OVER 7,000 IDENTIFIED RARE DISEASES, 95% DO NOT HAVE ANY FDA APPROVED ORPHAN DRUGS

80% of the diseases occur at birth and are genetic in nature

50% babies born with rare diseases die within a year of birth

ESTIMATES

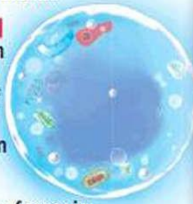
9-10 crore | No. of people in India who suffer from rare diseases, which is 25% of global patients

5.4 to 6.5 lakh | No. of people in Hyderabad, of a population of 90 lakh, who suffer from rare diseases

40% | Chances of error in diagnosis during a patient's first visit

4.8 years | Average time taken for diagnosis

20 years | Maximum time taken to detect



SOME RARE DISEASES

- Thalassaemia
- Sickle cell anaemia
- Ataxia
- Lysosomal storage disorder
- Congenital insensitivity to pain (rarest of rare)
- Acquired aplastic anaemia
- Muscular dystrophy
- Multiple sclerosis
- Sweet syndrome
- Paediatric cardiomyopathy

RARE DISEASES AND HOW INDIA FARES

Estimated rare disease patients in India **7 crore**

RARE DISEASE POLICY IN INDIA

First policy of treatment of rare diseases was formulated in **2017** and was also notified



The policy has provision of **100 crores** for patient treatment



A number of objections were raised including filing PIL as the funds were inadequate

The Courts directed the Government to come out with a new policy



The Government withdrew the policy and came out with a new policy in 2021 where crowdfunding was suggested as a source for treatment



There was no suggestion for a sustainable solution for treatment and for solving other problems

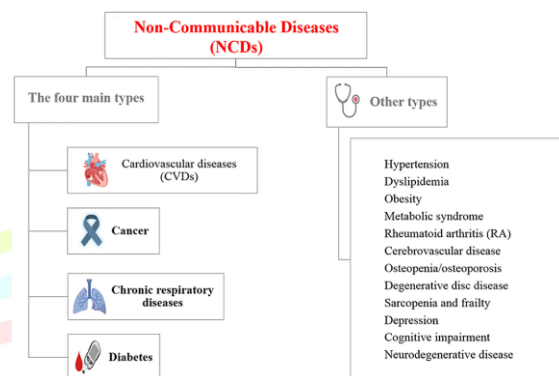


moneycontrol

THE HINDU

Communicable vs non-communicable disease

Communicable diseases	Non-Communicable diseases
1. The microbial agents can move from one infected individual to another.	1. The microbial agents are not able to move from one infected person to another.
2. They can be transmitted by air (Eg. Common cold, pneumonia), water (Eg: cholera) and through vectors such as mosquitoes (Eg: Dengue)	2. They are not communicated by such means.
3. Person to person transmission is possible	4. Person to person transmission is not possible.



- Since there has been an addition of diseases to the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS), such as non-alcoholic fatty liver disease, chronic kidney disease, etc., “there is a need that the Scheme in its present form may subsume all types of NCDs under a new name”.
- “To this effect, MoHFW has decided to rename ‘NPCDCS’ as ‘National Programme for Prevention & Control of Non-Communicable Diseases [NPNCD],’” it noted.

- The NPCDCS is being implemented under the National Health Mission (NHM) across the country.

PHEIC



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THE HINDU

Investment on nuclear reactors allowed



-
- India is considering overturning a ban on foreign investment in its nuclear power industry and allowing greater participation by domestic private firms, two government sources told Reuters, as part of a push for cleaner energy.

- The measures have been recommended by a government panel, set up by think-tank NITI Aayog.
- The aim is to reduce carbon emissions, and nuclear is in focus because it can supply energy 24/7, unlike solar energy, said the officials who declined to be named as they were not authorized to talk to the media. India's current nuclear power capacity is 6,780 MW.

THE HINDU



RSV Vaccine

- The Food and Drug Administration (FDA) approved the first vaccine Arexvy for the respiratory syncytial virus (RSV) to lower respiratory tract disease in people older than 60 years.
- This is the first RSV vaccine to be approved anywhere in the world.
- The vaccine is manufactured by the company, GSK.
- lower respiratory tract disease caused by the RSV virus leads to approximately 60,000-1,20,000 hospitalizations and 6,000-10,000 deaths among adults who are 65 years of age and older.
- The RSV virus significantly affects older adults with comorbidities. Like the common cold, RSV usually causes mild symptoms but can turn deadly if it infects older people

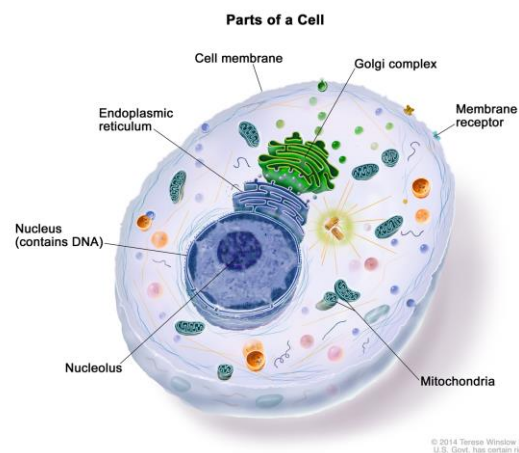
About RSV

- Respiratory syncytial virus, also called human respiratory syncytial virus and human orthopneumovirus, is a common, contagious virus that causes infections of the respiratory tract. It is a negative-sense, single-stranded RNA virus.



THE HINDU

Molecular motor



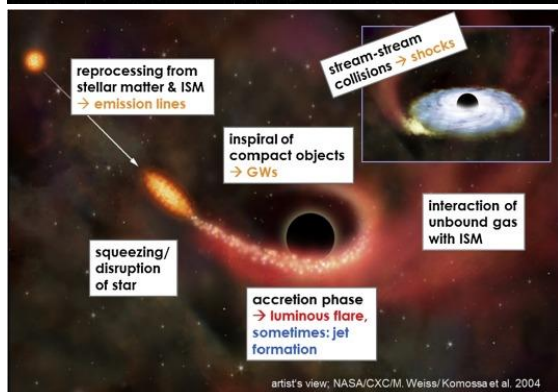
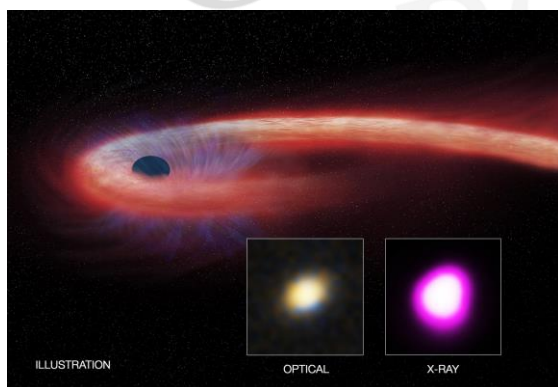
- Each cell in the body is a complex soup of electrochemical reactions that produce energy, but they are not enough.
- Cells also need to move things, such as pull two organelles together, move cargo towards and away from the nucleus, and power the movement of subcellular molecules.
- Many of these actions are driven by molecular motors, which use biochemical energy to do mechanical work. “Disruption or deregulation in these processes can

lead to deleterious effects which can manifest as different diseases,”

- When an enzyme called Rab5 binds to a long protein called EEA1, the protein loses its taut and rigid shape and becomes floppy.
- This ‘collapse’ pulls two membranes inside a cell closer to each other. In the new study, researchers have reported that EEA1 regains its rigid shape in another mechanism so that it can become floppy again to pull the membranes closer, creating a new kind of two-part molecular motor.

THE HINDU

Tidal Disruption Event



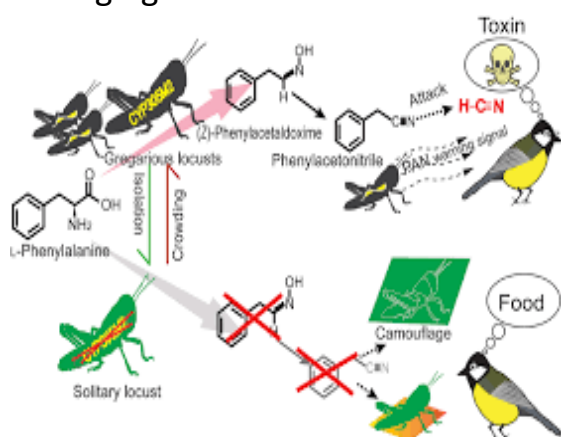
- A tidal disruption event (TDE) is an astronomical phenomenon that occurs when a star approaches sufficiently close to a supermassive black hole (SMBH) to be pulled apart by the black hole's tidal force, experiencing spaghettification.
- Spaghettification (sometimes referred to as the noodle effect) is the vertical stretching and horizontal compression of objects into long thin shapes.
- A portion of the star's mass can be captured into an accretion disk around the black hole (if the star is on a parabolic orbit), resulting in a temporary flare of electromagnetic radiation as matter in the disk is consumed by the black hole.
- An accretion disk is a structure (often a circumstellar disk) formed by diffuse material in orbital motion around a massive central body.

THE HINDU

Pheromone called phenyl acetonitrile

- Swarming migratory locusts which threaten food security across the globe avoid being eaten by other locusts by producing a smelly pheromone called phenyl acetonitrile (PAN), according to a new study (Science).

- The discovery of an anti-cannibalistic signalling pathway in locusts could provide a target for locust management strategies.
- Among species of locusts, cannibalism is common, and cannibalistic interactions have been implicated in the formation of damaging swarms.



• **THE HINDU**

GISAID

GISAID the Global Initiative on Sharing All Influenza Data, previously the Global Initiative on Sharing Avian Influenza Data, is a global science initiative established in 2008 to provide access to genomic data of influenza viruses.

The database was expanded to include the coronavirus responsible for the COVID-19 pandemic, as well as other pathogens.

The database has become the world's largest repository for SARS-CoV-2 sequences.

GISAID facilitates genomic epidemiology and real-time surveillance to monitor the emergence of new COVID-19 viral strains across the planet.

THE HINDU

Nutrients from Atmosphere

Nutrients derived from atmospheric dust deposited on an ocean's surface play a key role in mediating global phytoplankton biomass distributions (Science).

Some vital nutrients for phytoplankton growth are provided through the atmospheric deposition of desert dust.

Using a 14-year global time series of modeled dust deposition, researchers investigated the impact of atmospheric nourishment on global phytoplankton distributions.

THE HINDU



China's approach in Afghanistan

- Early April this year (12-13), the Foreign Minister of the People's Republic of China (PRC) Qin Gang, along with his counterparts from Russia, Iran, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan met in Samarkand for the meeting of the Foreign Ministers of Afghanistan's neighboring countries.
- The meeting coincided with the release of a position paper by Beijing on its policy in Afghanistan. Titled, 'China's position on the Afghan Issue.
- The paper first delineates the core principles which inform Beijing's policy choices the 'Three Respects' and 'Three Nevers', i.e., China respects the independence, sovereignty, and territorial integrity of Afghanistan and the 'independent choice', religious sentiments, and national customs of the Afghan people.
- Urging the international community to view the Afghan issue in a 'comprehensive, balanced and objective manner', China advocates using alternative regional groupings which do not include the U.S. and its allies, such as the Shanghai Cooperation Organisation (SCO), and the Moscow Format Dialogue.
- China urges the Taliban, regional countries, and the international community to crack down on terror groups, specifically the East Turkestan Islamic Movement, and help Afghanistan in augmenting its counterterrorism capabilities.
- The question of refugees and narcotics and their cross-border trafficking are also highlighted.
- Owing to its strategic location, Afghanistan is also economically very important for China: for its Belt and Road Initiative (BRI) and due to the presence of vast mineral resources.
- China has taken incremental steps to entrench its image as a major country playing a crucial role in ensuring global governance and providing a 'moderate and pluralistic environment' for dialogue.
- For India, China's continued engagement with Russia and Iran, along with the Central Asian countries will be consequential in understanding how their policies will shape and what it would mean for India's interests in Afghanistan.
- As China, India, and Russia dabble in trade using partner currencies for payment instead of the U.S. dollar,

various media are rife with speculation about the demise of the dollar as a world reserve currency,”

- The rise of the dollar as the world currency closely aligns with the rise of the U.S. as one of the world’s strongest economies with a deep financial system and a stable government.
- According to reports from the International Monetary Fund, the dollar’s share of foreign exchange reserves has fallen over time from 80% in the 1970s to about 60% in 2022. The euro has made up for about 20% of the remaining 40% room created by this fall.
- Most of the Renminbi reserves that are held outside China are by Russia.
- In fact, both these countries accumulate the currency of the other as foreign exchange reserves. From that point of view, a trading arrangement between China and Russia makes more sense.
- However, even though India’s biggest supplier of oil is Russia followed by Saudi Arabia and Iraq, its biggest trading partner is still the U.S., according to recent data.
- Moreover, Russia’s importance as an oil supplier is a result of the deep discounts offered by its oil suppliers to Indian refiners. Such discounts will not be sustainable over the long run
- Dollar-denominated assets Along with general acceptability as a medium of exchange for international trade, the U.S. dollar is also in demand because of demand for dollar-denominated assets worldwide.
- The debt issued by the U.S. government is bought by many countries across the world as a hedge against currency fluctuations affecting the valuation of reserves.
- Additionally, many currencies are pegged to the U.S. dollar and a few countries use the dollar as their own currency
- As U.S. government debt is in high demand worldwide, it gets issued at the lowest interest rate. This relaxes the fiscal constraint substantially, boosting the debt-issuing government’s capacity to borrow more without having to deal with the negative effects of such borrowing on the domestic economy.
- This phenomenon is often referred to as the dollar premium and is something that many other governments would like to have access to, including that of China and Russia.



THE HINDU

Why dollar cannot be dominated?

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THE HINDU

Blue sky

What is Blue-sky?

- Blue-sky is a micro-blogging platform and social website built on the AT Protocol (Authenticated Transport Protocol).
- Blue-sky might be classified as a Twitter competitor due to its founding team but it is different in terms of its structure, as it is meant to form part of a decentralized ecosystem.
- Users of apps built on the AT Protocol would be able to move between platforms without losing their followers, media, work, and data.

THE HINDU

Water body census

Why is a water body census necessary?

- India is facing a water crisis with groundwater decline, biodiversity loss, and climate change increasing the frequency of floods and droughts. In this context, water bodies are important.
- What does the data show? Such a large national effort allows us to compare spatial and temporal trends of water bodies across the country.
- These are some of the observations based on the data:- (a) Most water bodies in the country are very small the vast majority of India's water bodies are less than one hectare (ha) large. This means locating and keeping track of them is likely to remain a challenge
- (b) The water bodies show regional patterns that correlate with rainfall in general, in drier States like Gujarat, Maharashtra, and Rajasthan, water bodies tend to be larger and publicly held. In the wetter parts of the country, like Kerala, West Bengal, and States in the northeast, more than three-quarters of the water bodies are privately owned
- (c) Most water bodies have never been repaired or rejuvenated

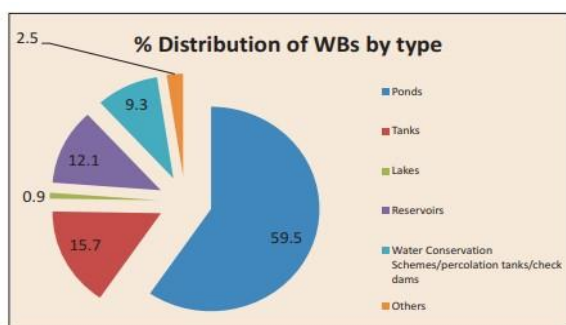
several water bodies were classified as “not in use”, meaning despite the recent interest in rejuvenating water bodies, most of them have never been repaired or revived.

- As per the report, 24,24, 540 water bodies have been enumerated in the country, out of which 97.1% (23,55,055) are in rural areas and only 2.9% (69,485) are in urban areas. 59.5% (14,42,993) of water bodies are ponds, followed by tanks (15.7%, i.e 3,81,805), reservoirs (12.1%, i.e 2,92,280), Water conservation schemes/percolation tanks/check dams (9.3%, i.e 2,26,217), lakes (0.9%, i.e 22,361) and others (2.5%, i.e 58,884).

State is the leading state for water conservation schemes. Whereas West Bengal has the highest number of ponds & reservoirs, whereas Andhra Pradesh has highest number of tanks, and Tamil Nadu has highest number of lakes.

- 99.7% (96,767) water bodies are public owned whereas the remaining 0.3% (295) are under private ownership.

THE HINDU



- It is a matter of pride for Maharashtra, which Maharashtra



Buddhism diplomacy

- There is much significance to India having hosted a two--day global Buddhist summit in New Delhi (April 20-21), which was organized by the Ministry of Culture in collaboration with the International Buddhist Confederation.

THE HINDU

India's efforts so far

- The Indian government has been actively investing in its Buddhist diplomacy efforts, with a focus on promoting tourism through the development of the "Buddhist tourist circuit."
- With its strong historical and cultural ties to Buddhism, India is well-positioned to play a leading role in shaping the discourse around Buddhist issues on the global stage.
- Against the backdrop of the Russia-Ukraine crisis, Mr. Modi said, "India has not given 'Yuddha' to the world but 'Buddha'."
- Buddhist diplomacy has the potential to promote regional cohesion, given that nearly 97% of the global Buddhist population is based in Asia.
- During the Cold War, China effectively used Buddhist diplomacy to engage with its neighbouring countries, and it continues to employ this approach to gain legitimacy for its Belt and Road Initiative.
- As India and China compete to dominate the Buddhist heritage as a tool for soft power, India holds an advantage due to the faith's origins in the country.
- The current government's guiding principles for foreign policy, Panchamrit principles include "Sanskriti Evam Sabhyata" which means cultural and civilizational links, which were highlighted during the Delhi summit, which saw a diverse group of 171 foreign delegates from South Korea, Thailand, Cambodia, Japan, and Taiwan, along with 150 delegates from Indian Buddhist organizations.
- Also in attendance were prominent scholars, sangha leaders, and dharma practitioners. Through such efforts, India hopes to reinforce its image as a responsible global power committed to peaceful cooperation and regional stability.
- To further strengthen its Buddhist diplomacy, India should continue promoting Buddhism at the highest levels of government, while also

organizing cultural events to showcase the country's rich Buddhist history.

- The Indian Council for Cultural Relations (ICCR) could play a significant role in promoting such events within and outside India”.
- India also needs to utilize the reach of Bollywood in promoting its Buddhist heritage. China, with its influence over Hollywood, has completely dominated the narrative around Buddhism through cinema.
- In contrast, India is behind in this domain; there have not been any efforts made through cinema. India's G-20 presidency this year could be used to promote Buddhist diplomacy on a bigger scale through various cultural meetings, especially as Buddhist teachings align with the motto of India's G-20.

THE HINDU

Drug Recall

- Is there a drug recall law in India? One of the reasons for this difference in behavior in India and the U.S. is because the law in the latter requires pharmaceutical companies to recall from the market those batches of drugs that have failed to meet quality parameters.
- India, on the other hand, has been mulling the creation of a mandatory

recall law for substandard drugs since 1976, and yet no law exists that mandates such medicine be removed from the market to this day.

- In 1976, the Drugs Consultative Committee, which consists of all the state drug controllers along with senior bureaucrats from the Ministry of Health and the national drug regulator, the Central Drugs Standard Control Organisation (CDSCO), discussed the issue of drug recalls.

THE HINDU

- **Why is there no recall law?**
- There are three possible answers to this question.
- The first is that the Drug Regulation Section of the Union Health Ministry is not up to the task of tackling complex drug regulatory issues due to a combination of factors including apathy, lack of expertise, and a greater interest in enabling the growth of the pharmaceutical industry than protecting public health.
- The second possible factor is India's highly fragmented regulatory structure, with each State having its own drug regulator.
- To create an effective recall mechanism, the responsibility of recalling drugs has to be centralized, with one authority wielding the legal power to hold companies liable for failures to recall drugs from across the country.
- **Food misleading add**
- On April 29, the Advertisement Monitoring Committee at the Food Safety and Standards Authority of India (FSSAI) flagged 32 fresh cases of food business operators (FBOs) making misleading claims and advertisements
- What are the regulations?
- There are varied regulations to combat misleading advertisements and claims, some are broad, while others are product specific.
- For example, FSSAI uses the Food Safety and Standards (Advertising & Claims) Regulations, 2018 which specifically deals with food (and related products) while the Central Consumer Protection Authority (CCPA)'s regulations cover goods, products, and services.
- Further, the Programme and Advertising Codes prescribed under the Cable Television Network Rules, 1994 stipulate that advertisements must not imply that the products have "some special or miraculous or supernatural property or quality, which is difficult of being proved."
- The FSSAI seeks that the advertisements and claims be "truthful, unambiguous, meaningful, not misleading and help consumers to comprehend the information provided". The claims must be scientifically substantiated by validated methods of characterizing or quantifying the ingredient or substance that is the basis for the claim.

- Product claims suggesting a prevention, alleviation, treatment, or cure of a disease, disorder, or particular psychological condition is prohibited unless specifically permitted under the regulations of the FSS Act, 2006.
- **India and ASEAN Military exercise**
- The two-day sea phase of the ASEAN- India Maritime Exercise (AIME 2023) began with naval ships and aircraft from India, Vietnam, Thailand, the Philippines, Indonesia, and Brunei taking part.
- They were in the Vietnamese Exclusive Economic Zone when the Chinese boats moved towards them.

INDIA and EU carbon border tax

- The European Union (EU) proposes to introduce a framework for levying a carbon tax on imports of products that rely on non-green or sub-optimally sustainable processes and where carbon emissions are deemed to have not been adequately priced.
- This Carbon Border Adjustment Mechanism (CBAM) will begin with an import monitoring mechanism and culminate in the levy of duties as determined from January 2026.
- The EU argues that the CBAM will ensure its climate objectives are not undermined by carbon-intensive imports and spur cleaner production in the rest of the world.
- This poses a significant threat to some of India's biggest exports to the trading bloc, including iron ore and steel, with carbon levies estimated to range from 19.8% to 52.7%...
- Last year, about a third of India's iron, steel, and aluminium exports, for instance, were shipped to EU members.
- Engineering products, the largest export growth driver in recent years, would be impacted too.
- Larger players across sectors are gradually turning to greener technologies, but the transition needs time even more so for smaller businesses to move away from legacy carbon-heavy technologies (such as blast furnaces for steel making).
- The EU believes the carbon tax is compatible with World Trade Organization norms, but India is looking to challenge that.
- It may also flag the incompatibility with the UN's climate change framework which moots common but differentiated responsibilities for developed and developing nations.
- So, a threat of retaliatory tariffs on EU imports is also being weighed even as plans are afoot to quantify the various carbon taxes levied in India.
- Having positioned itself as the voice of the global South, India must play that part to the hilt while at the helm of the G-20 this year and galvanize other nations to take on the EU's carbon tax framework.



Syria in Arab League

- The Arab League's decision to readmit Syria, after over a decade of isolation, signals a growing desire of regional powers to set aside intra-Arab rivalries and work towards establishing a more predictable, stable relationship with one another.
- Ironically, it is Saudi Arabia, which had rallied the Arab countries to expel Syria in 2011 amid the regime's crackdown on protests that pushed for Syria's readmission.
- The move is also a recognition that Syria's President Bashar al-Assad has practically won the civil war and signals the weakening influence of the U.S., which still imposes heavy sanctions on the regime and is upset with the League's decision.
- When protests broke out in Syria in 2011, inspired by similar protests elsewhere in the Arab Street, the regime's response was one of violent repression.
- When the protesters took up arms and got support from Mr. Assad's regional rivals such as Saudi Arabia, the UAE, Qatar, Jordan, and Turkey, the crisis turned into civil war. Over the years, the Assad regime, backed by Russia, Iran, and Hezbollah, managed to stabilize and push back the rebels and jihadists.
- The Arab countries realized that their policy of regime change and isolation of Syria had only boomeranged on them.
- As Syria was expelled from the Arab League and Arab countries backed ant regime forces in the civil war, Damascus moved closer to Iran.
- Today, Saudi Arabia, the UAE, Jordan, and others want to re-establish the lost balance in their ties with Syria.
- The Arab countries and Turkey, which host millions of Syrian refugees, want to send them back.
- For that, they need to cooperate with and help sanctions-hit Syria, which was battered by a devastating earthquake in February, sustain itself economically.
- The changing geopolitical environment in West Asia in which rivals Saudi Arabia and Iran are warming up to each other has also helped the Arab rapprochement with Syria. As a token gesture, Syria has agreed to take back 1,000 refugees from Jordan and cooperate with neighbors to crack down on drug smuggling.
- But this is only the beginning. Mr. Assad might have won the civil war, but the wounds of the war, in which his regime used brutal methods to

crush the opposition, are still festering.



THE HINDU



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Israel port

- Arab train networks in future would be carrying Indian goods to the Israeli port of Haifa,



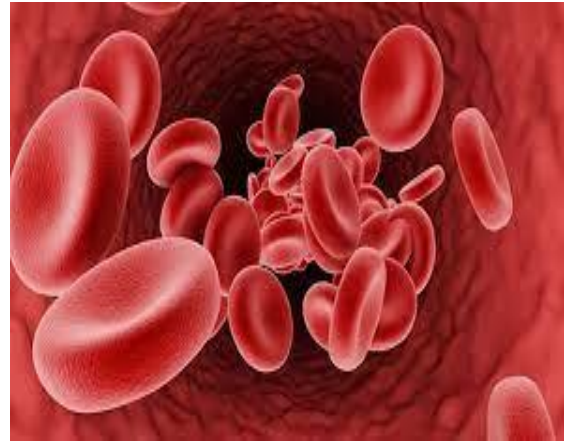
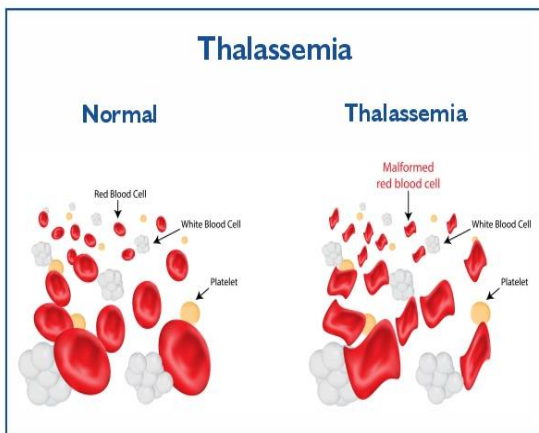
Press freedom index

- On World Press Freedom Day (WPFDD) (3rd May), the World Press Freedom Index 2023 was published by Reporters without Borders (RSF).
- India ranked 161st among the 180 countries with a score of 36.62. In 2022, India's rank was 150.
- Sri Lanka also made significant improvement on the index, ranking 135th this year as against 146th in 2022.
- Pakistan is ranked at 150th position.
- The situation has gone from 'problematic' to 'very bad' in three other countries: Tajikistan (down 1 at 153rd), India (down 11 at 161st) and Turkey (down 16 at 165th).



Thalassemia

- Thalassemia is an inherited (i.e., passed from parents to children through genes) blood disorder caused when the body doesn't make enough of a protein called hemoglobin, an important part of red blood cells.
- Thalassemia is a treatable disorder that can be well-managed with blood transfusions and chelation therapy.



- Variants (also known as mutations) in the HBB gene cause beta-thalassemia.
- The HBB gene provides instructions for making a protein called beta-globin. Beta-globin is a component (subunit) of hemoglobin.

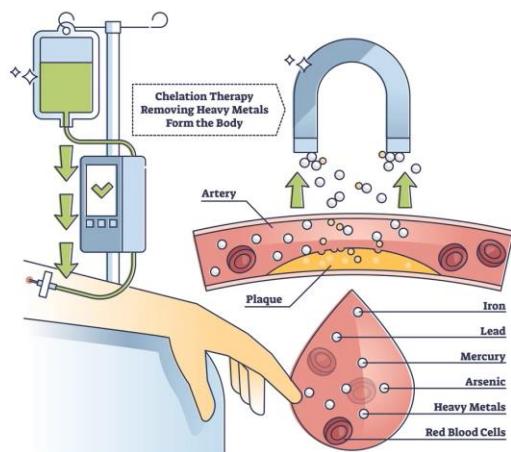
THE HINDU

CPEC in Afghanistan



- Pakistan, China, and Af- Associated Press Afghanistan have agreed to forge closer economic ties by extending the Beijing-backed China-Pakistan Economic Corridor (CPEC) to Afghanistan to fully harness the country's potential as a hub for regional connectivity.

CHELATION THERAPY





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Aviation policy

- There are currently 148 airports in the country and it is the third largest domestic market in the world in terms of seat capacity
- While India's airlines cumulatively suffered huge losses (₹15,000 crores) in the financial year 2020-2021 owing to the pandemic, losses are not a post-COVID phenomenon.
- In 2019--20, Indigo was the only airline to make a profit, while all other players posted losses led by then state-run Air India at ₹4,600 crores (Chart 1).
- Aviation policy is broad-based in India and is dealt with by the Ministry of Civil Aviation under the legal framework of the Aircraft Act 1934, and Aircraft Rules 1937.
- The DGCA is the statutory regulatory authority that comes in for issues related to safety, licensing, airworthiness, and so on.
- While the Mother Act and Rules have seen frequent modifications, aviation experts argue that India has not kept pace with modern technology in aerospace and increasing costs to the industry which ultimately affects passenger growth.
- While the Indian aviation sector initially saw a boom in the 1990s after opening up as a result of liberalization reforms and the breaking of the monopoly created by Indian Airlines and Air India, by the early 2000s, only two major airlines that were given licenses (Jet Airways and Sahara) survived.
- Low-cost carriers then entered the market around 2003 with diversification and lower fares being expected to promote the industry's growth.
- Heavily- taxed ATF contributes to the single biggest expenses of carriers, amounting to anywhere between 40-50% of operational expenses.
- Some Indian States impose provincial taxes of as much as 30% on jet fuel.
- This also makes shorter flight routes unsustainable for smaller airlines while big carriers like Indigo offer ultra-cheap fares on routes flown by rivals.
- National Civil Aviation Policy (NCAP) in 2016, which removed the five-year domestic experience rule but kept in place the 20 aircraft fleet requirement mandating domestic airlines to have at least 20 aircraft (or 20% of its entire fleet size whichever is higher) for domestic operations.

- While newer entrants to the industry, like Vistara and AirAsia India, lobbied the government to remove the 5/20 rule, legacy carriers who had to meet the earlier requirements to go international opposed the change as being bad for competition.



- Most Indian airlines do not own entire fleets as their financials do not allow them to shell out huge one-time payments to buy planes but lease them from companies based out of India instead
- About 80% of India's total commercial fleet is leased.
- Airlines also have to bear costs in terms of airport fees for the use of airport facilities including aircraft landing, freight and other charges related to the use of airport infrastructure such as runways and passenger terminals.
- There are also high costs associated with the training of airline crew.
- Besides, the crunch in pilots is also reflective of the inadequate number of Flight Training Organisations.

- As for Go First, which filed for bankruptcy at the National Company Law Tribunal (NCLT) last week, 28 of its 54 aircraft are grounded.
- This, it says is due to “the serial failure of Pratt & Whitney’s engines, while it continued to incur 100% of its operational costs”.
- The airline said that 50% of its fleet had to be grounded by December 2022, leading to a loss of over ₹10,000 crore for the airline.

THE HINDU

Space Policy

- While ISRO's budget is approximately \$1.6 billion, India's space economy is over \$9.6 billion. Broadband, OTT, and 5G promise a double-digit annual growth in satellite based services.
- It is estimated that with an enabling environment, the Indian space industry could grow to \$60 billion by 2030, directly creating more than two lakh jobs.
- Yet, it is the enabling policy environment that has proved elusive.
- The first satellite communication policy was introduced in 1997, with guidelines for foreign direct investment (FDI) in the satellite

industry that were further liberalized but never generated much enthusiasm.

- Today, more than half the transponders beaming TV signals into Indian homes are hosted on foreign satellites, resulting in an annual outflow of over half a billion dollars.
- The changing geopolitical environment in West Asia in which rivals Saudi Arabia and Iran are warming up to each other has also helped the Arab rapprochement with Syria. As a token gesture, Syria has agreed to take back 1,000 refugees from Jordan and cooperate with neighbors to crack down on drug smuggling.
- But this is only the beginning. Mr. Assad might have won the civil war, but the wounds of the war, in which his regime used brutal methods to crush the opposition, are still festering.
- Indian Space Policy 2023
- The 'Vision' is to "enable, encourage and develop a flourishing commercial presence in space" which suggests an acceptance that the private sector is a critical stakeholder in the entire value chain of the space economy.
- It makes five key points.
- It defines its role in India's "socio-economic development and security, protection of environment and lives, pursuing peaceful exploration of outer space, stimulation of public awareness and scientific quest",
- First, this is the only reference to 'security' in the document, making it clear that the focus is on civilian and peaceful applications. Considering that space-based intelligence, reconnaissance, surveillance, communication, positioning, and navigation capabilities are increasingly seen as mission critical by the defence services.
- That India conducted a successful A-SAT (anti-satellite) direct ascent test in March 2019, and, in the same year, set up the Defence Space Agency and the Defence Space Research Organisation, it is reasonable to infer that a defence-oriented space security policy document will be a separate document.
- Second, the policy lays out a strategy and then spells out the roles of the Department of Space, ISRO, the Indian National Space Promotion and Authorisation Centre (IN-SPACe) set up in 2020, and the News space India Limited (NSIL), a public sector unit set up in 2019 under the

Department of Space as the commercial arm of ISRO to replace the now defunct Antrix.

- Third, it states that ISRO will “transition out of the existing practice of being present in the manufacturing of operational space systems. Hereafter, mature systems shall be transferred to industries for commercial exploitation.
- ISRO shall focus on R&D in advanced technology, proving newer systems and realisation of space objects for meeting national prerogatives”.
- Another of ISRO’s tasks in the new policy is to “share technologies, products, processes and best practices with NGEs (non-government entities) and/or Government companies”
- Fourth, the NGEs (this includes the private sector) are “allowed to undertake end-to-end activities in the space sector through establishment and operation of space objects, ground-based assets, and related services, such as communication, remote sensing, navigation, etc.”.
- Satellites could be self-owned, procured, or leased; communication services could be over India or outside; and remote sensing data could be disseminated in India or abroad. NGEs can design and

operate launch vehicles for space transportation and establish their own infrastructure.

- Finally, IN-SPACe is expected to create a “stable and predictable regulatory framework” that will ensure a level playing field for the NGEs.
- It will act as a promoter by setting up industry clusters and as the regulator, issue guidelines on liability issues

Critical analysis

- The policy sets out an ambitious role for IN-SPACE but provides no time frame for the necessary steps ahead. Neither is there an indicative timeline for ISRO’s transitioning out of its current practices nor is there a schedule for IN-SPACE to create the regulatory framework.
- The policy framework envisaged will need clear rules and regulations pertaining to FDI and licensing, government procurement to sustain the new space start-ups, liability in case of violations and an appellate framework for dispute settlement.



THE HINDU

Arth Ganga

- Arth Ganga is a sustainable viable economic model conceptualized under the "Namami-Gange" program to integrate people in the basin with Ganga Rejuvenation.
- A number of initiatives have been taken by the National Mission for Clean Ganga (NMCG) under this Arth-Ganga concept, in coordination with many Ministries/ Departments of Central and state governments and even NGOs.
- There are six key verticals of intervention in the model, namely:
 - Promotion of Zero Budget Natural Farming (ZBNF), which includes promotion of Natural Farming in the Ganga Basin.
 - Monetization and reuse of treated wastewater and sludge. It refers to reuse of treated wastewater by ULBs for the generation of revenue and conversion of sludge into usable products such as manure, pavers and bricks for revenue generation as well as safe disposal of sludge.
 - Development of Livelihood generation opportunities through activities like 'Ghats Main Haat' for the sale of local products of Ganga cities/towns along riverbanks; self-sustaining of Ghats and capacity building trainings of Ganga Praharis etc. Jalaj units for income generation activities for Ganga Praharis have been set up in many locations.
 - Encouragement of Public Participation through organizing regular events such as Ganga Aartis, cleanliness drives, Ganga Guide Trainings, Yoga on Ghat, Ghat Pe Haat, etc. in coordination with District Ganga Committees.
 - Promotion of Cultural heritage and tourism by the development of small local tourism and cultural circuits; introduction of boat tourism through community jetties; promotion of yoga and wellness, medical tourism, adventure tourism, eco-tourism, enhancement of cultural connection with the river through Aartis & Ganga trails;
 - Institution Building through setting up of decentralized monitoring and governance units like District Ganga Committees (DGCs); enhancement of the capacities of DGCs and other local administration institutions for

better water governance and sustenance of the projects, post asset handover.

- **THE HINDU**

GES
REPORTER

SC ON SHIVSENA

- In a unanimous judgment, the Supreme Court on Thursday held that then Maharashtra Governor Bhagat Singh Koshiyari's call for a trust vote, which led to the resignation of the Uddhav Thackeray-led Maha Vikas Aghadi government last June, was illegal.
- It said that Mr. Koshiyari was "not justified" in calling Chief Minister Uddhav Thackeray to prove his majority on the floor of the House.
- But the Court also said that it could not reinstate Mr. Thackeray as Chief Minister because he had resigned instead of facing the trust vote

Can the Supreme Court decide on a disqualification petition?

- The Speaker is the authority to adjudicate petitions for disqualification under the 10th Schedule.
- The petitioners wanted the Court to give its decision on the issue of disqualification of Mr. Shinde and his supporters.
- However, the Court said it "cannot ordinarily adjudicate petitions for disqualification under the 10th Schedule.

- There are no extraordinary circumstances in the instant case that warrant the exercise of jurisdiction by this Court to adjudicate disqualification petitions.
- The Speaker must decide disqualification petitions within a reasonable period." The Court said an MLA has the right to participate in the proceedings of the House "regardless of the pendency of any petitions for their disqualification.
- What is the Court's ruling on the role of the political party in relation to the legislature party?
- Questions arose on whose whip is binding if the whip appointed by the political party and the one acting on behalf of the legislature party (the Shinde group in this case) give different instructions to members.
- The Shinde faction argued that it is the legislature party that appoints the whip. The Court disagrees
- The Court ruled that the direction to vote in a particular manner or abstain is issued by the political party, and not the legislature party.
- Both the Whip and the Leader of the party in the House should be appointed only by the political party.
- Accordingly, it said the Speaker's action approving Mr. Shinde's appointment as Shiv Sena leader in the House was contrary to law.

- “The Speaker shall recognise the Whip and the Leader who are duly authorised by the Shiv Sena political party with reference to the provisions of the party constitution, after conducting an enquiry in this regard and in keeping with the principles discussed in this judgment,
- “The Speaker shall recognise the Whip and the Leader who are duly authorised by the Shiv Sena political party with reference to the provisions of the party constitution, after conducting an enquiry in this regard and in keeping with the principles discussed in this judgment,
- While the administration and Congress decide on taxation and spending, the collection of taxes and the borrowing of funds is done by the U.S. Treasury Department.
- In 1917, Congress passed the Second Liberty Bond Act, to allow then-President Woodrow Wilson to take out funds for the First World War without waiting for the approval of absent Congress lawmakers.
- However, Congress created a limit on borrowing (\$11.5 billion at the time), thus creating a debt ceiling that could only be raised by the approval of Congress (House and Senate).

What is the U.S. debt ceiling?

- When the federal government spends more than it brings in, it runs up a budget deficit. It then has to borrow money to meet its financial obligations, accruing debt.
- The government borrows by creating and selling debt securities like bonds to U.S. investors and companies, banks, pension funds, foreign investors, and countries.
- The largest part of these are owned by the U.S. federal government itself, which keeps the money for social security schemes, medicare, federal pensions, and so on.



THE HINDU

SC on Delhi govt power

- The Supreme Court on Thursday gave the Delhi government power to make laws and wield control over bureaucrats deputed to its departments while declaring that civil service officers are “politically

neutral professionals” who serve the people and not parties. “A constitutionally entrenched and democratically elected government needs to have control over its administration.

- The administration comprises several public officers, who are posted in the services of a particular government, irrespective of whether or not that government was involved in their recruitment.

THE HINDU

PHEC and mPox

- The World Health Organization (WHO) declared that mpox no longer constitutes a global health emergency.
- The decision was prompted by sharply falling case numbers worldwide but emphasized that the disease remains a threat, particularly in areas of Africa where it has long been endemic.



-

What makes a PHEIC?

(Public Health Emergencies of International Concern)

- ✓ The virus is a public health risk to other states through the international spread
- ✓ It could require a coordinated international response
- ✓ The situation is serious, unusual or unexpected
- ✓ The decision to declare a PHEIC is made by the WHO's director-general and a committee of experts

Source: The World Health Organization

- The changing geopolitical environment in West Asia in which rivals Saudi Arabia and Iran are warming up to each other has also helped the Arab rapprochement with Syria. As a token gesture, Syria has agreed to take back 1,000 refugees from Jordan and cooperate with neighbors to crack down on drug smuggling.
- But this is only the beginning. Mr. Assad might have won the civil war, but the wounds of the war, in which his regime used brutal methods to crush the opposition, are still festering.

THE HINDU

Indian Space Policy 2023

- The ‘Vision’ is to “enable, encourage and develop a flourishing commercial presence in space” that suggests an acceptance that the private sector is a critical stakeholder

in the entire value chain of the space economy.

It makes five key points.

- It defines its role in India's "socio-economic development and security, protection of environment and lives, pursuing peaceful exploration of outer space, stimulation of public awareness and scientific quest",

THE HINDU

GES
REPORTER

Welfare schemes

- Saksham Anganwadi and Poshan 2.0 aims to address child malnutrition and hunger.
- From 2021--22, the Anganwadi programme (ICDS) was merged with POSHAN Abhiyaan and a nutrition scheme for adolescent girls.
- According to National Family Health Survey (NFHS)-5 data, the percentage of anaemic, underweight, and stunted children in India is 67%, 32%, and 36%, respectively, which is among the worst in the world.
- Another important nutrition scheme is the mid-day meal (MDM) scheme, covering almost 12 crore children. Evidence shows that the scheme has led to an improvement in class attendance, learning as well as nutritional outcomes, and reduced stunting in children.
- The PM Matru Vandana Yojana (PMMVY) provides maternity benefits as a conditional cash transfer of ₹5,000 to women in the unorganised sector.
- To cover all women and births as per the National Food Security Act (NFSA) mandate, the scheme needs around ₹14,000 crores, but the PMMVY Budget is yet to cross ₹3,000 crore.
- MGNREGA guarantees 100 days of employment to every rural household whereas the NFSA provides subsidized grains to over 80 crore people.
- The National Social Assistance Programme (NSAP) is a scheme that provides pensions to the elderly, widows, and disabled individuals below the poverty line and monetary assistance to families that have lost a breadwinner.



- According to the latest State of the World's Children report by UNICEF, India has the lowest vaccination rates in South Asia.
- Furthermore, India's out-of-pocket expenditure on health remains much higher than the global average, pushing millions into poverty each year.

THE HINDU

Asymmetric federalism

- A symmetric federalism has been a positive feature of India's polity, but even the most pragmatic

arrangement may not always guarantee harmonious relations between the Centre and its constituent units.

- In the latest verdict, a Constitution Bench has ruled that the elected government does indeed have control over administrative services.
- However, it is limited to services related to the extent of its current executive and legislative powers, which extend to all subjects under the State and Concurrent Lists, except for the three excluded ones public order, police, and land.
- The Centre's argument, that in the absence of a Public Services Commission for Delhi and in view of the phrase "insofar as such matter is applicable to Union Territories" the subject of 'services' will not fall under the Delhi government's remit, was rejected.
- The Court has emphasized the sui generis nature of Delhi, so that its Union Territory status is not used to limit the role of the elected government.
- The five-judge Bench ruling again underlines the principle that a representative regime should not be undermined by an unelected administrator.
- In practical terms, the provisions of the GNCTD (Amendment) Act, 2021,

which sought to strengthen the hand of the Lt. Governor in running Delhi, may continue to be a source of conflict.



THE HINDU

Model prison act

- The Ministry of Home Affairs has prepared the 'Model Prisons Act 2023,' that will replace a British-era law to overhaul the prison administration, which will focus on the reformation and rehabilitation of inmates, it said on Friday. .
- Among the salient features of the Act are provisions of punishment for prisoners and jail staff for use of prohibited items such as mobile phones in jails, establishment and management of high security jails, open jail, and provisions for protecting the society from the criminal activities of hardened criminals and habitual offenders.
- It also contains provisions for providing legal aid to prisoners,

parole, furlough, and premature release to incentivize good conduct

- Prisons in the country and ‘persons detained therein’ are a State subject and the existing law in this context, the Prisons Act of 1894 is a pre-independence era Act and is almost 130-years-old, it said.
- Two other related laws. The Prisoners Act, of 1900, and The Transfer of Prisoners Act, of 1950 are also decades-old.

THE HINDU

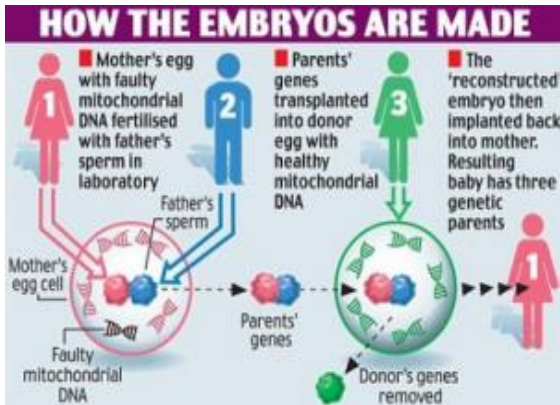
Bill against caste discrimination

- The California Senate has overwhelmingly passed a legislation seeking to explicitly ban caste discrimination, in a historic move that would make America’s most populous State also the country’s first to outlaw caste-based bias.


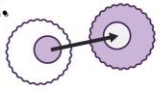
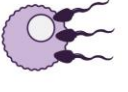
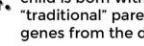


THE HINDU

Mitochondrial therapy



combating mitochondrial disease

1.  a female donor donates an egg with a healthy mitochondria
2.  nucleus of mother's egg is removed and placed into donor's egg
3.  donor egg (with mother's nucleus) is fertilized and prepared for gestation
4.  child is born with DNA reflecting that of its "traditional" parents, but also with 20-25 genes from the donor's mitochondria

SOURCE: AMERICAN SOCIETY FOR REPRODUCTIVE MEDICINE

- Eight years after the U.K. became the first country in the world to approve a reproductive technique known as mitochondrial replacement therapy (MRT), "less than five" children have been born using the procedure, as of April 2023.
- Last year, Australia became the second country to approve this therapy.
- Three parent IVF Mitochondria replacement involves transferring nuclear genetic material from a mother's egg into a donor egg that

has had its nuclear DNA removed so the embryo does not inherit the mitochondrial disease. This would allow a woman carrying mitochondrial diseases to have healthy children.

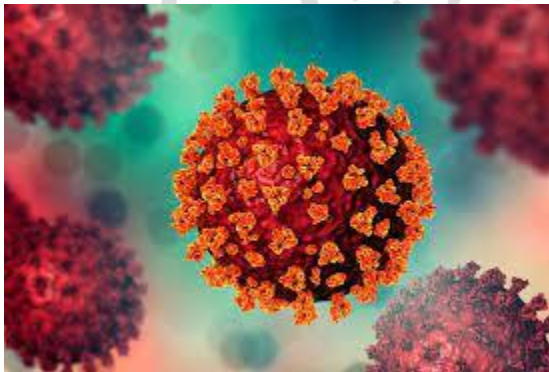
- The resulting IVF embryo combines sperm and egg from the biological parents, while the mitochondria is from the donor's egg.
- As a result, the baby has DNA from each of its parents, along with 37 genes from the donor.
- This is the reason why this technique is also called three parent IVF (in vitro fertilisation)
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THE HINDU

Longer covid

- Some people who have been infected with the virus that causes COVID-19 can experience long-term effects from their infection, known as Long COVID or Post-COVID Conditions (PCC).
- Long COVID occurs more often in people who had severe COVID-19 illness, but anyone who has been infected with the virus that causes COVID-19 can experience it.
- People who are not vaccinated against COVID-19 and become infected may have a higher risk of developing Long COVID compared to people who have been vaccinated



THE HINDU

Hammerhead shark

- As per a new study (Science), hammerhead sharks hold their breath to maintain body temperature as they hunt in deep, cold waters.



- The previously unobserved phenomenon, which has broad similarities to breath-holding thermoregulation strategies employed by marine mammals, may be widespread among other deep-diving sharks and fish.
- Like most fish, sharks are fully ectothermic, and their body temperatures are largely regulated by their immediate environment.

What are ectotherm??

- An ectotherm is an organism in which internal physiological sources of heat are of relatively small or of quite negligible importance in controlling body temperature.
- Such organisms rely on environmental heat sources, which permit them to operate at very economical metabolic rates.

THE HINDU

Homo sapien adaptation

- Homo species particularly Homo sapiens were uniquely equipped to adapt to diverse environments

(Science), which may have enabled our species and that of our closely related ancestors to survive in highly fluctuating Pleistocene environments. .

- Whether this is because our species was uniquely successful at adapting to Pleistocene environments, because we outcompeted other contemporary Homo species, or because we simply outlived others by chance remains largely unknown.



THE HINDU

Palghat gap



- The Palghat Gap is about 40 km wide, with the steep Nilgiris and Anamalai hills, both rising above 2,000 msl, on either side.
- The Palghat Gap has historically been important as a significant gateway into the State of Kerala.
- It is a corridor for both roads and railways that connects Coimbatore with Palakkad.
- The Bharathappuzha river flows through it. In contrast to the tropical rainforests of the Western Ghats, the vegetation in the Palghat Gap is classified as dry evergreen forest.
- It also marks a divide in the flora and fauna of the region.
- For example, several species of frogs are found only on one side of the Palghat Gap.
- The origin of the Palghat Gap also stems from the drift of continental shelves after Australia and Africa broke off from the Gondwana landmass. India and Madagascar remained as one landmass until large-scale volcanic activity split the two, the split occurring where the Palghat Gap is located this is mirrored in the Ranotsara Gap on the eastern face of Madagascar.
- It has been speculated that one reason for the biogeographic distinctions in species in north and south of the Gap could be due to an

ancient river or an incursion of the sea in the distant past. Elephant populations on the Nilgiris side differ in their mitochondrial DNA from elephants in the Anamalai and the Periyar sanctuaries.

- One study from IISc Bangalore has analyzed DNA sequence divergence data in populations of the White-bellied Shortwing, an endemic and threatened bird.
- Birds found around Ooty and Baba Budan are called the Nilgiri blue robin; the Anamalai group differs slightly in appearance and is called the Whitebellied blue robin.



THE HINDU

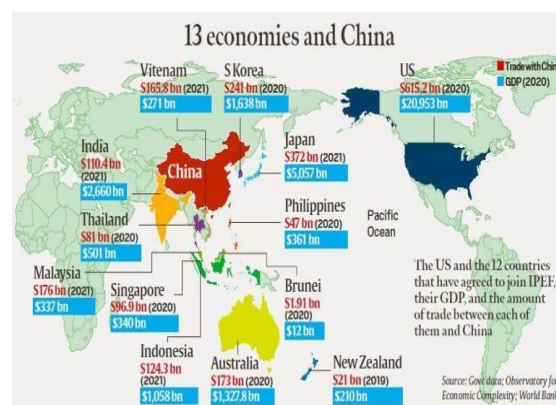
SC ON BAIL

- The Supreme Court has held that orders of courts in bail cases should neither be too long and elaborate nor come too late as both violate the constitutional mandate of personal liberty.
- While rejecting or granting bail to accused persons, should not slip into extensive deliberations on the merits of the case or evidence involved. Such “long” debates at the stage of bail may prejudice the case itself for the accused.
- Again, once a case for bail is reserved for orders, the pronouncement of the decision should not take too long. Every day of waiting is a dent on the personal liberty of an under trial.



THE HINDU

IPEF



About IPEF

- In May 2022, the United States launched the Indo-Pacific Economic Framework for Prosperity (IPEF) with Australia, Brunei Darussalam, Fiji India, Indonesia, Japan, the Republic of Korea, Malaysia, New Zealand, Philippines, Singapore, Thailand, and Vietnam.
- This framework will advance resilience, sustainability, inclusiveness, economic growth, fairness, and competitiveness for our economies.
- Through this initiative, the IPEF partners aim to contribute to cooperation, stability, prosperity, development, and peace within the region. This framework will offer tangible benefits that fuel economic activity and investment, promote sustainable and inclusive economic growth, and benefit workers and consumers across the region.

- The 14 IPEF partners represent 40 percent of global GDP and 28 percent of global goods and services trade.
- The launch began discussions of future negotiations on the following pillars: (1) Trade; (2) Supply Chains; (3) Clean Energy, Decarbonization, and Infrastructure; and (4) Tax and Anti-Corruption. The IPEF is designed to be flexible, meaning that IPEF partners are not required to join all four pillars.

ANALYSIS

- In November 2019, India walked out from the trade pact called the Regional Comprehensive Economic Partnership (RCEP) involving China, Japan, South Korea, Australia, New Zealand, and the 10-state Association of Southeast Asian Nations (ASEAN) grouping.
- Now India along with many of the same countries, but with China replaced by the United States, is getting into the U.S.-driven Indo-Pacific Economic Framework for Prosperity (IPEF).
- Trade deals used to be mostly about tariffs. Increasingly though, issues related to intellectual property, services, investment, domestic regulation, digital, and labor and

environmental standards, are becoming more important.

- The U.S.'s IPEF proposal completely removes the tariff element of typical trade deals and is entirely about all these other areas. In any case, traditional trade deals in the U.S. face likely roadblocks in the legislature.
- Early assessment by many experts shows that the IPEF would result in a complete stranglehold over the economic systems of the participating countries, in a manner that is to the complete advantage of the U.S.
- The IPEF is really about developing a strategic economic bloc an integrated economic system centred on the U.S., and, as importantly, excluding China.
- The IPEF has four pillars: trade, supply chains, clean economy, and fair economy.



THE HINDU

Millets

- The UN Food and Agriculture Organization (FAO) has declared 2023 to be the 'International Year of Millets', giving these crops a shot in the arm even as countries worldwide are looking to them for their ability to grow in environmental conditions that the climate crisis is rendering more common.
- Millets are becoming more popular in India as well because of their low input requirements and high nutritional density, both of which are valuable for a country whose food security is expected to face significant challenges in the coming decades.

What are millets?

- Millets are fundamentally grasses.
- They are cultivated worldwide, but especially in the tropical parts of Africa and Asia, as cereal crops. Some of the more common varieties include pearl millet (*Cenchrus americanus*), barnyard millet (*Echinochloa utilis*), finger millet (*Eleusine coracana*), and foxtail millet (*Setaria italica*).



- There is both palaeontological and textual evidence to indicate that millets were being cultivated in the Indian subcontinent five millennia ago. According to the Agricultural and Processed Foods Development Authority, India is the world's largest producer of millet
- Sorghum (*Sorghum bicolor*), adlay millet (*Coix lachrymal-jobi*), and teff (*Eragrostis tef*), among others, are grasses that differ in some respects from millets but are grouped together with them.

Why are they sought after?

- They are drought tolerant, adapted to growing in warm weather, and require low moisture (axiomatically, they are particularly efficient consumers of water) and loamy soil.
- They don't grow well in water-logged or extremely dry soil which might occur after heavy rainfall or particularly bad droughts, respectively.

- The nutritional content of millets include carbohydrates, proteins, fiber, amino acids, and various minerals. Different millet varieties have different nutrient profiles
- Each millet kernel consists of three major parts, called pericarp, endosperm, and germ. The pericarp has an outer covering called the husk. The husk and the pericarp together protect the kernel from inhospitable conditions, disease, and physical damage.
- The endosperm is the largest part of the kernel and its 'storage' centre.
- It has a protein covering called the aleurone.
- According to an FAO article about sorghum, the endosperm is "relatively poor in mineral matter, ash and oil content" but "a major contributor to the kernel's protein (80%), starch (94%) and B-complex vitamins (50-75%)

How does processing affect the nutrients?

- Processing and preparing millets for consumption can affect nutrients in three ways enhance them, suppress/remove them, and ignore them.
- In this context, 'whole grain' refers to the endosperm, germ, and bran (pericarp + aleurone) whereas

'refined grain' refers only to the endosperm.

- The husk is removed from the grains because it is composed of cellulosic matter that the human body cannot digest.

What is the effect of polishing?

- A frequent last step is polishing. The longer the grains were milled, the more protein, fat, and fibre contents the process removed.
- A different 2012 study found that barnyard millet could be polished with a rice polisher for up to three minutes without significant nutrient loss.
- Polishing is the process whereby brown rice, for example, is changed to white rice by rubbing off the bran and the germ.

THE HINDU

Mitochondrial therapy

- The announcement that a baby was born using three persons' DNA in the U. K. on Thursday caused the stir that news of this kind was expected to evoke.
- The baby, technically, has three parents, deriving the mitochondria from a donor apart from the genetic material (DNA) from biological parents

Why did the baby need 'three parents'?

- The baby carried most of its DNA from its parents, and a minor per cent from the donor, whose mitochondria has been used while fertilising the egg.
- Mitochondria are basically the powerhouses of the cells. They generate energy, and thus are also responsible for cell function in the human body.
- Certain defects might occur impacting the way the mitochondria produces energy for the cells (especially in the 'energy-hungry' tissues of the brain, nerves, muscles, kidneys, heart, liver), and thereby impacting cell function.
- The diseases that arise out of such mitochondrial mutations are called mitochondrial diseases.
- In this case, the mother had a mitochondrial disease she was intent on not passing on to her baby. She also did not want to have a donor egg, for the baby would carry the genetic material of the donor
- What is the scientific process? Mitochondrial diseases are only passed on by the mother, and research has been attempting to find a way for protecting the infant from inheriting the disease.
- The baby's biological father's sperm was used to fertilise the eggs from the biological mother, who has a mitochondrial disease, and a third, female donor with clear mitochondria, separately.
- Then, the nuclear genetic material from the donor's egg is removed and replaced with the genetic material from the biological parents.
- The final product the egg which has the genetic material (DNA) from the parents, and the mitochondria from the female donor, is implanted in the uterus and carried to full term to yield a baby who will be free from the mother's mitochondrial disease.
- This process is termed Mitochondrial Donation Treatment (MDT)
- Sometimes it is possible that a small amount of the maternal mitochondria with errors may get passed on during the procedure.

THE HINDU



Methanol



- Methanol the simplest alcohol (CH₃OH) is a chemical building block for hundreds of everyday products, including plastics, paints, car parts, and construction materials.
- Methanol also is a clean energy resource used to fuel cars, trucks, buses, ships, fuel cells, boilers, and cook stoves.
- Methanol was formerly produced by the destructive distillation of wood.
- The modern method of preparing methanol is based on the direct combination of carbon monoxide gas and hydrogen in the presence of a catalyst.
- Increasingly, syngas, a mixture of hydrogen and carbon monoxide derived from biomass, is used for methanol production.
- It is also used in automotive antifreeze, in rocket fuels, and as a general solvent.

- Methanol is also a high-octane, clean-burning fuel that is a potentially important substitute for gasoline in automotive vehicles.

THE HINDU

DEFAULT BAIL

- The right to statutory bail, often known as default bail, is available to accused persons in cases when the investigating agency fails to complete its investigation within the stipulated time. Under Section 167(2) of the Code of Criminal Procedure (CrPC), the maximum time available to investigators is 60 or 90 days, depending on the seriousness of the offense.
- Methanol is a colorless liquid that boils at 64.96 °C (148.93 °F) and solidifies at -93.9 °C (-137 °F).
- It forms explosive mixtures with air and burns with a nonluminous flame. It is completely miscible in water.
- If the authorities are unable to complete the investigation within this time period, the accused can seek to be released from custody by applying for default bail under the first proviso to Section 167(2) of the CrPC.
- Notably, the 'default' characteristic of this bail comes from the fact that the application is unrelated to the

merits of the case, and is designed to prevent long-term detention of the accused.

- The right to default bail has been characterized by the Court in multiple judgments as an indefeasible right, flowing from Article 21 of the Constitution which guarantees the right to life and personal liberty.
- Therefore, in cases where the investigating authorities attempted to circumvent this procedure, the Court rightly called out these tactics and refused to extend custodial detention of the accused.
- In Achpal vs State of Rajasthan (2018), the Court held that an investigation report, albeit complete, if filed by an unauthorized investigating officer, would not bar the accused from availing default bail.
- The Supreme Court's decision in Ritu Chhabaria delegitimised such illegal practices and held that incomplete charge sheets filed by the police would not bar an accused from applying for default bail.
- The Court emphasised that the preliminary or incomplete nature of these police reports revealed that the investigation was not complete.



THE HINDU

DNA Profiling

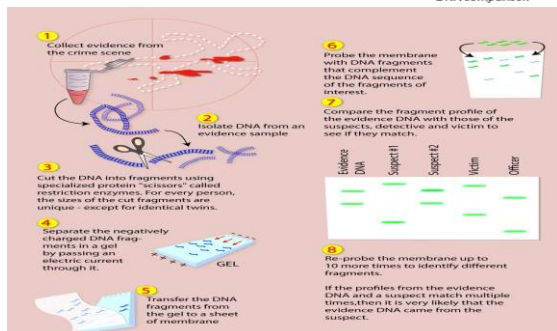
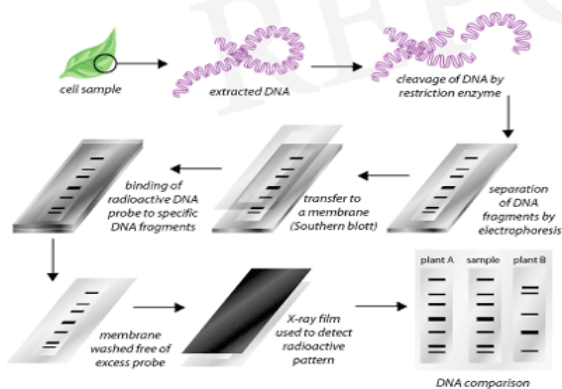
- Its recent judgments, the Supreme Court has been critical of admitting DNA report as clinching evidence in criminal cases. In Rahul v. the State of Delhi, Ministry of Home Affairs (2022), the Court said “the collection and sealing of the samples sent for examination were not free from suspicion.”
- It objected to the fact that the Delhi High Court and the trial court did not examine the underlying basis of the findings in the DNA reports and also did not examine whether the expert reliably applied the techniques

DNA SAMPLING

- The first responder on the scene of a crime needs to ensure that the biological sample is dried at room temperature and sealed in a paper, and not a plastic, bag.
- The sample should be free from any contamination due to humic acid,

which is a primary constituent of the soil.

- Liquid blood samples must be collected using blood collection cards or EDTA (Ethylene Diamine Tetra Acetic Acid) vials in a vaccination box with coolants to maintain low temperature
- Extract DNA material from a sample by separating other elements, such as RNA, proteins, lipids, cell debris, and humic acid. Nowadays, automated machines are used to extract DNA from the biological material depending upon low and high copy number of DNA for further analysis.
- The next step is the quantification of the extracted DNA material using the RT-PCR machine.



THE HINDU

AePS

What is AePS?

- The Aadhaar-enabled Payment System (AePS) is a bank-led model which allows online financial transactions at Point-of-Sale (PoS) devices and micro ATMs of any bank using Aadhaar authentication.
- The model removes the need for OTPs, bank account and other financial details.
- It allows fund transfers using only the bank name, Aadhaar number, and fingerprint captured during Aadhaar enrolment, according to the National Payments Corporation of India (NPCI)

Is AePs enabled by default?

- Neither the Unique Identification Authority of India (UIDAI) nor NPCI mentions clearly whether AePS is enabled by default.
- Cashless India, a website managed and run by the MeitY, says the service does not require any activation, with the only requirement being that the user's bank account should be linked with their Aadhaar number.
- Users who wish to receive any benefit or subsidy under schemes notified under section 7 of the Aadhaar Act, have to mandatorily

submit their Aadhaar number to the banking service provider, according to the UIDAI.

- How is biometric information leaked? While Aadhaar data breaches have been reported in 2018, 2019, and 2022, the UIDAI has denied any breach of data.



THE HINDU

Transformer and Chatgpt

- In the first part of the 2010s, deep neural networks (DNNs) took over ML by storm, replacing the classic pipeline of hand-crafted features and simple classifiers.
- DNNs ingest a complete document or image and generate a final output, without the need to specify a particular way of extracting features.

What is 'attention'?

- Attention in ML allows a model to learn how much importance should be given to different inputs.
- In the translation example, attention allows the model to select or weigh words from the memory bank when deciding which word to generate next.
- While describing an image, attention allows models to look at the relevant parts of the image when generating the next word.
- A fascinating aspect of attention-based models is their ability for self-discovery, by parsing a lot of data.

What is transformer??

- Machine learning (ML), a subfield of artificial intelligence, teaches computers to solve tasks based on structured data, language, audio, or images, by providing examples of inputs and the desired outputs.
- This is different from traditional computer programming, where programmers write a sequence of specific instructions.
- Here, the ML model learns to generate desirable outputs by adjusting its many knobs often in the millions.
- Deep neural networks
- A transformer is a two-part neural network. The first part is an 'encoder' that ingests the input sentence in the source language (English) and the second part is a 'decoder' that generates the

translated sentence in the target language (Hindi).

- The encoder converts each word in the source sentence to an abstract numerical form that captures the meaning of the word within the context of the sentence, and stores it in a memory bank. .
- Just like a person would write or speak, the decoder generates one word at a time referring to what has been generated so far and by looking back at the memory bank to find the appropriate word.
- Both these processes use a mechanism called 'attention', hence the name of the paper.
- A key improvement over previous methods is the ability of a transformer to translate long sentences or paragraphs correctly.
- The adoption of transformers subsequently exploded. The capital 'T' in ChatGPT, for example, stands for 'transformer'.

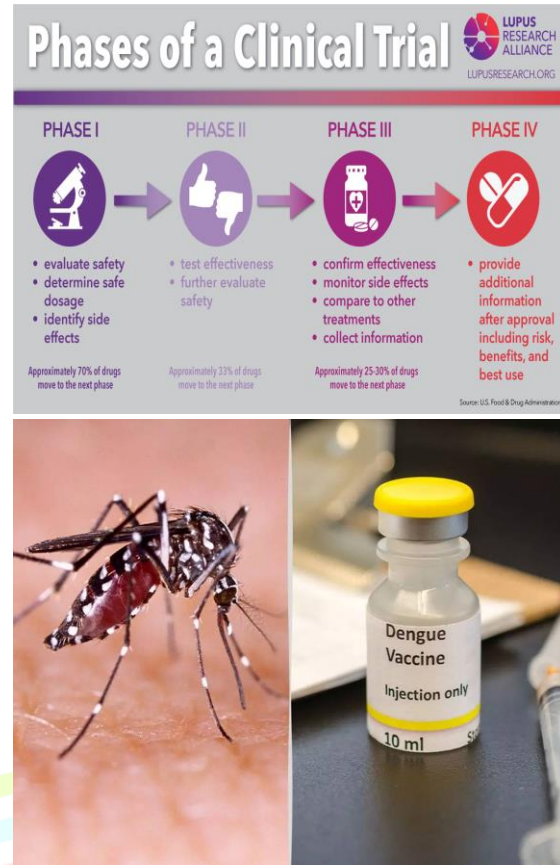


- **THE HINDU**



Dengue vaccine

- Moving a step closer to developing India's first vaccine against dengue, drug makers Serum Institute of India and Panacea Biotic have submitted their responses to the call by the Indian Council of Medical Research (ICMR) for an Expression of Interest for collaborative Phase 3 clinical trials for indigenous manufacturers. The development of a dengue vaccine is highly challenging due to the fact that the virus has four antigenically different serotypes (DENV1-4)
- For an ideal dengue vaccine, the vaccine should be effective against all four serotypes at the same time. Primary DENV infections are usually asymptomatic or with mild flu-like symptoms.
- Post DENV infection it takes antibodies ~1 week to develop.
- During primary infection with one DENV serotype, antibodies produced by this serotype usually result in a long-lasting protection against that particular serotype and short-lived protection against other serotypes



THE HINDU

Collegium system

EVOLVING SYSTEM

Pre-1993 Law minister selected judges in 'consultation' with judiciary

Post-1993 Judiciary assumed 'primacy' by creating collegiums in Supreme Court and high courts. HC judge is appointed after a collegium of judges of that court suggests his/her name, which then has to be cleared by a three-member SC collegium. The 3 judges include the CJI and at least one SC judge who has

been associated with that particular HC in the past. **SC appointments cleared by 5-member collegium** including CJI and 4 other seniormost judges

2014 Proposed judicial appointments commission seeks to make selection process more transparent. To have **6 members, including law minister, CJI, 2 SC judges and 2 'eminent persons'**. At least 5 members will have to agree on each judge's appointment

A JURY OF JUDGES

WHAT IS THE COLLEGIUM SYSTEM?	CRITICISMS
<ul style="list-style-type: none"> ● A forum which decides on appointments, transfers (A/Ts) of judges. ● Comprised of Chief Justice of India, 4 Supreme Court Judges ● President merely approves CJI's choice 	<ul style="list-style-type: none"> ● Born from 'Three Judges Cases' which gave primacy to CJI's call on A/Ts ● Judiciary gets greater say than Executive on A/Ts ● Administrative burden of checking professional background data ● Closed-door affair, lacks transparency ● Exclusivity sidelines talented junior judges, advocates
SOME OF THE CHANGES SOUGHT: <ul style="list-style-type: none"> ● CJI cannot make unilateral choice ● Consulted judges' views need to be in writing ● Non-compliance must make CJI choice non-binding ● Transfer of Judges reviewable only in case of non-compliance 	

NJAC VS COLLEGIUM SYSTEM

WHAT'S COLLEGIUM SYSTEM	WHAT'S NJAC
<ul style="list-style-type: none"> ● Collegium system based on Three Judges Cases ● Under it, appointment of judges are made by Chief Justice of India and four most senior Supreme Court judges. ● Has no constitutional backing. ● Constitution of India's Article 124 says appointments to be made by President in consultation with judges as President may deem necessary. ● Critics say it is a closed-door system which lacks transparency 	<ul style="list-style-type: none"> ● NJAC was a body created to end the two-decade-old Supreme Court Collegium system of judges appointing judges. ● Was passed by Lok Sabha on August 13, 2014. Was passed by Rajya Sabha a day later. ● Will consist of six people – CJI, two senior-most Supreme Court judges, Law Minister and two 'eminent' persons. ● Critics say judges in NJAC will need support of others to push a name through. They fear judicial independence being compromised.



THE HINDU

Spurious liquor

- Contrary to popular belief, the World Health Organization has found that “no level of [its] consumption is safe for our health”. Long-term use leads to dependence, heightens the risk of some cancers and heart disease, and may eventually cause death. . .
- Ethanol (C₂H₅OH) is one carbon atom bonded to three hydrogen atoms and one more carbon atom; the second carbon atom is also bonded to two hydrogen atoms and the hydroxyl group, also known as the ion OH⁻.

- Inside the body, it is metabolized in the liver and the stomach by alcohol dehydrogenase (ADH) enzymes to acetaldehyde.
- Then aldehyde dehydrogenase (ALDH) enzymes transform the acetaldehyde into acetate. The adverse effects of alcohol consumption, from the hangover to a cancer, are due to acetaldehyde.

What is spurious liquor?

- Spurious liquor is characterised by the liquid mixture containing methanol as well.
- The methanol molecule (CH₃OH) consists of one carbon atom bonded with three hydrogen atoms and one hydroxyl group. Schedule I of the Manufacture, Storage, and Import of Hazardous Chemical Rules 1989 includes methanol.
- The most common way to produce methanol is to combine carbon monoxide and hydrogen in the presence of copper and zinc oxides as catalysts at 50-100 atm of pressure and 250°C.



Why to import cotton?



- - 1) India has a large share in the world trade of cotton yarn, however trade in garments is only 4 per cent of the world's total.
 - 2) The weaving, knitting and processing units cannot use much of the high quality yarn that is produced in the country.
 - 3) Most of the production in fragmented small units, which cater to the local market, is a major drawback for the industry.
 - 4) As a result, many of our spinners export cotton yarn while apparel/garment manufactures have to import fabric.
 - 5) The need to import is due to poor power supply, out-dated machinery in the weaving and processing sectors, low output of labour and stiff competition with the synthetic fibre industry.

THE HINDU

REPORTER

China Vs Canada

The Canadian government declared Chinese diplomat Zhao Wei “persona non grata,” for allegedly targeting a Canadian lawmaker critical of China’s human rights record.

Hours later, China announced a “reciprocal countermeasure” by asking Jennifer Lynn Lalonde, a top diplomat in the Canadian consulate in Shanghai, to leave the country by May 13.

Growing Chinese interference in Canada.

After details of the CSIS report were revealed, the Canadian government was heavily criticised for its inaction against China.

Diplomatic ties between China and Canada have been unsteady for the past few years, especially after Canadian police arrested Huawei Technologies executive Meng Wanzhou on charges of fraud in 2018. A few days after her arrest, China detained two Canadians on spying charges a move then called “hostage diplomacy”

During that period, China suspended imports of canola from Canada, alleging pests in the shipment.

The ban was, however, lifted last year amid a global shortage of food

in the wake of the Russia Ukraine war.

THE HINDU

LIBOR

What is LIBOR?

LIBOR is a global benchmark interest rate that combines individual rates at which banks opine they may borrow from each other (for a particular period of time) at the London interbank market.

It is used as a benchmark to settle trades in futures, options, swaps, and other derivative financial instruments in over-the-counter markets (participants engaging directly without using an exchange) and on exchanges globally.

Further, consumer lending products including mortgages, credit cards, and student loans, among others, too use it as a benchmark rate

What was the controversy around it?

The central flaw in the mechanism was that it relied heavily on banks, to be honest with their reporting disregarding their commercial interests.

It must be noted that the rates were made public.

Therefore, it would not be particularly useful to impress upon potential and current customers the

various disadvantages in obtaining funds.

THE HINDU

Hysterectomies

Hysterectomy

The uterus is surgically removed with or without other organs or tissues. In a total hysterectomy, the uterus and cervix are removed.

In a total hysterectomy with salpingo-oophorectomy, (a) the uterus plus one (unilateral) ovary and fallopian tube are removed, or (b) the uterus plus both (bilateral) ovaries and fallopian tubes are removed.

In a radical hysterectomy, the uterus, cervix, both ovaries, both fallopian tubes, and nearby tissue are removed. These procedures are done using a low transverse incision or a vertical incision.



Warmest Five year Period

It is near-certain that 2023-2027 will be the warmest five-year period ever recorded, the United Nations warned on Wednesday as greenhouse gases and El Nino combine to send temperatures soaring.

There is a two-thirds chance that at least one of the next five years will see global temperatures exceed the more ambitious target set out in the Paris accords on limiting climate change, the UN's World Meteorological Organization (WMO)

The hottest eight years ever recorded were all between 2015 and 2022, with 2016 the warmest but temperatures are forecast to increase further as climate change accelerates.

The 2015 Paris Agreement saw countries agree to cap global warming at "well below" two degrees Celsius above average levels measured between 1850 and 1900 and 1.5 degrees Celsius if possible.

A warming El Nino is expected to develop in the coming months and this will combine with human-induced climate change to push global temperatures into uncharted territory.

"This will have far-reaching repercussions for health, food security, water management, and the environment.



THE HINDU

SC recent Judgement

Delhi is a Union Territory with a legislature, and the demarcation of powers is spelt out in Article 239AA. The Supreme Court stated that parliamentary democracy implied a government accountable to the people.

The judgment explains that this entails a triple chain of command: civil service officers are accountable to Ministers; Ministers are accountable to the legislature; and the legislature is accountable to the electorate. The severance of any link of this triple chain would be antithetical to parliamentary democracy.

Therefore, the civil services will have to report to the Delhi Cabinet

Maharashtra judgment

The Court ruled that the Tenth Schedule makes a differentiation

between the legislature party and the political party. The legislature party includes all MLAs/Members of Parliament belonging to the political party.

It determined that the power to issue directions was with the political party, and not the legislature party.

Therefore, the person in charge of the political party (who may not be a member of the legislature) would control every vote of the MLAs/MPs of that party

Failure to adhere to such direction by any MLA/MP would lead to disqualification.

Thus, this judgment further entrenches the power of the party leadership over the legislature.

It reinforces the idea that the MP/MLA is not accountable to the electorate but only to the party that fielded them in the election.

In doing so, it breaks the triple chain of accountability, which is an underlying principle of the Delhi judgment

THE HINDU



Election and airwaves

- In the recently concluded Karnataka Assembly elections, political parties were provided free airtime on public broadcasters, All India Radio (Akashvani), and Doordarshan during elections.
- Time vouchers are distributed by a lottery system by the Election Commission in a transparent process to obviate any preferential treatment in getting primetime slots.
- The guidelines by the Election Commission of India (ECI) also require that a maximum of two-panel discussions are also aired by Akashvani and DD. These discussions provide an excellent platform for parties, both big and small, to debate and criticize each other's policies and manifestos, and in general promote an informed citizenry.
- The transcripts of political parties are vetted to ensure that they adhere to relevant codes. These codes proscribe any content which is inter alia critical of other countries, attacks religions or other communities, or incites violence and personal attacks.

THE HINDU

Green deposits

- The Reserve Bank of India (RBI) came up with a regulatory framework for banks to accept green deposits from customers.
- Under the new framework, banks that accept green deposits will have to disclose more information on how they invest in these deposits.

What are green deposits?

- Green deposits are not very different from the regular deposits that banks accept from their customers.
- The only major difference is that banks promise to earmark the money that they receive as green deposits towards environment friendly projects.
- A green deposit is just one product in a wide array of other financial products such as green bonds, green shares, etc., that help investors put money into environmentally sustainable projects.
- The RBI's framework for the acceptance of green deposits lays down certain conditions that banks must fulfill to accept green deposits from customers.
- Firstly, banks will have to come up with a set of rules or policies approved by their respective Boards that need to be followed while

investing in green deposits from customers.

- These rules need to be made public on the banks' websites and banks will also have to disclose regular information about the amount of green deposits receive.
- The RBI has come up with a list of sectors that can be classified as sustainable and thus eligible to receive green deposits.
- These include renewable energy, waste management, clean transportation, energy efficiency, and afforestation.
- Depositors who care about the environment may get some satisfaction from investing their money in the environmentally sustainable investment product



THE HINDU

Lumpy skin disease

LUMPY SKIN DISEASE IN CATTLE

Called LSD for short, it is caused by a poxvirus

It is transmitted through the bite of an infected mosquito or tick

It can spread through saliva & nasal secretions

LSD is not a zoonotic disease, which means it can't infect people

MAIN SYMPTOM
Skin nodules/lumps in one area or all over the body

THE EFFECT IN CATTLE
Reduced milk production
Reduced mole fertility
Weight loss
Pregnancy loss

TREATMENT
No specific remedy
Antibiotics, anti-inflammatory drugs & vitamins are prescribed to prevent a secondary infection

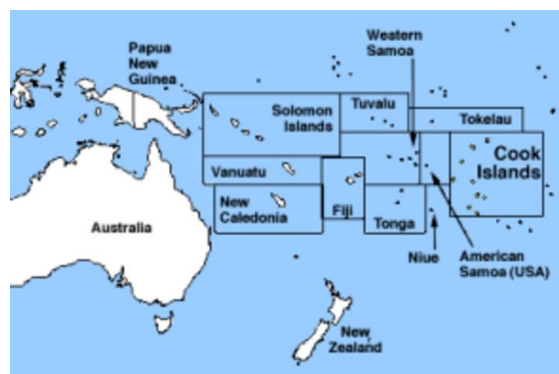
An outbreak of LSD has been reported in:
 • India • China • Thailand
 • Bangladesh • Vietnam
 • Nepal • Myanmar

In Malaysia, just 0.1% of 81,252 head of cattle tested at 9,108 farms have the disease



THE HINDU

USA and Papua New Guinea



- Papua New Guinea will sign a security pact with the United States that gives American troops access to the Pacific nation's ports and airports, its leader said on Thursday.



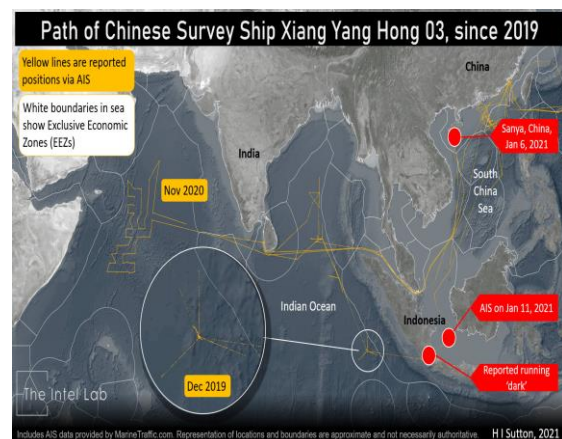
- U.S. President Joe Biden has placed more importance on the Pacific over concerns about an increasingly assertive China, which is trying to woo nations with an array of diplomatic and financial incentives in return for strategic support.
- Prime Minister James Marape said two agreements focusing on defence cooperation and maritime surveillance had been agreed with Washington and would be formally signed at the earliest opportunity after parliamentary approval.
- The agreements, which can be renewed every 15 years, will give the United States vital movement in Papua New Guinea's waters near sea routes to Australia and Japan, in return for access to U.S. satellite surveillance.

THE HINDU

Chinese vessels sunken



- Two crew of the capsized Chinese deep sea fishing vessel are confirmed dead, the Chinese Ministry of Transport said on Thursday as a multinational effort is racing against time to locate the missing crew.
- The Indian Navy said that responding to a distress call from the fishing vessel Lu Peng Yuan Yu 028, it had deployed P-8I maritime patrol aircraft on May 17 for search and rescue (SAR) efforts in the southern Indian Ocean Region, approximately 900 nautical miles from India.



India diplomacy

- The Quad Summit (Australia, India, Japan, U.S.) due to be held in Sydney has been cancelled in the wake of U.S. President Joe Biden's domestic troubles, all four Quad leaders will meet on the sidelines of the G-7. Following this foray with the Indo-Pacific "coalition of democracies"
- Hosting the Shanghai Cooperation Organisation (SCO) Summit scheduled for July 3-4, where he is expected to receive China's President Xi Jinping, Russia's President Vladimir Putin, the Pakistan Prime Minister Shehbaz Sharif, leaders of Central Asian states, the soon-to-be added SCO members, the President of Iran, Ebrahim Raisi, and the President of Belarus, Alexander Lukashenko".
- The composition of the SCO, which includes those being inducted as observers such as Myanmar, gives the impression of it being a largely anti-western grouping, with practically every country sanctioned by the West as a part of it.
- A lesson or two may also be learned from the Shanghai Cooperation Organisation Council for Foreign Ministers (SCO-CFM) held in Goa earlier this month, where India's bilateral relations with mainly Pakistan, but China and even Russia, were allowed to overshadow more substantive multilateral outcomes.
- In 2017, the same year that India took part in reviving the Quad in the face of overt belligerence from Beijing, India also joined the SCO as a full member, agreeing to host the summit this year. New Delhi also exchanged places with both Italy and Indonesia in order to host the G-20 in 2023
- It is to India's credit that it continues to maintain this balance, and is being courted by countries across the global divide, even as it seeks to hold out against two nuclear-armed land neighbors at its frontiers.
- Events that could jolt India off its careful tightrope walk and force a rethink of its policies one way or the other. A sudden success for Ukraine in its much-delayed, upcoming spring offensive, for example, would require New Delhi to reconsider its unalloyed ties with Moscow.
- Any major aggression by China across any part of the Line of Actual Control would be another such event requiring a strategic overhaul.
- India may also be forced to rethink if Russia turns more belligerent over the payment problem or withhold

supplies of defence hardware to India under pressure from China.

- Equally, any decision by the U.S. and Europe to “force a choice” on India: to go forward with unilateral sanctions for the increase in Russian oil inflows processed at the Rosneft-owned refinery in Gujarat, or through the old threat of Countering America’s Adversaries Through Sanctions Act-Related Sanctions (CAATSA) for India’s acquisition of the Russian S-400 missile systems.



THE HINDU



SDG's VLR



- Bhopal has become the first city in India to join the growing global movement on the localization of Sustainable Development Goals (SDGs) following the release of its Voluntary Local Review (VLR).
- In 2015, the 193 member states of the United Nations adopted the 2030 Agenda for Sustainable Development, which consists of 17 Sustainable Development Goals and 169 targets as a plan of action for 'people', 'the planet', and 'prosperity'.
- India has made commendable efforts toward the adoption, localization, and achievement of the SDGs. NITI Aayog presented India's second VNR at the HLPF convened in 2020.
- India's Ministry of Statistics and Program Implementation (MoSPI) has published a National Indicator Framework (NIF) for the review and monitoring of the SDG.

- Cities are the most important stakeholders in Agenda 2030 as at least 65% of the 169 targets could not possibly be achieved without the engagement of local urban stakeholders.
- A VLR is a tool to demonstrate how local actions are leading the way in equitable and sustainable transformations for people and building a coalition of partners toward this endeavour.
- Bhopal's VLR is the result of a collaboration between the Bhopal Municipal Corporation, UN-Habitat, and a collective of over 23 local stakeholders.
- It has mapped 56 developmental projects to the SDGs across the three pillars, of 'people' (SDGs 1, 3, 4,5), 'planet' (SDGs 6,13,15), and 'prosperity' (SDGs 7,8,11).



THE HINDU

G7 AND G20



- Mr. Modi has committed to amplifying, in conversations the impacts of sanctions imposed by the G-7 countries on the developing world, including on food, fertilizer, and energy security.
- These rules need to be made public on the banks' websites and banks will also have to disclose regular information about the amount of green deposits receive.
- Ukrainian President Volodymyr Zelensky has decided to accept Japan's invitation to attend the G-7 summit in person, and all eyes in India will be on a possible meeting between him and Mr. Modi, which would be a first since the Ukraine war began.
- Apart from the Russia Ukraine tussle, India will be at the forefront as G-7 and G-7+ countries discuss debt sustainability and help countries such as Sri Lanka to avoid a "debt trap".
- It will also be a key speaker on issues such as building supply chain reliability, spearheading alternative energy coalitions, and seeking infrastructure and development aid in the region.
- Finally, India's unique voice, as a nuclear power that is not a member of the Non-Proliferation Treaty regime, yet has built an impeccable
- While all G-7 countries the U.S., the U.K., Canada, France, Germany, Italy, Japan and the EU are united in their efforts to sanction Russia further, it will be left to India, which has walked a line of fine balance thus far, to temper some of that language, particularly if joint communiques are sought with the outreach countries including South Korea, Australia, Brazil, Vietnam, Indonesia, Comoros and the Cook Islands.
- Neither Russia nor China, the "elephants in the room", are actually invited, and India's position will be all the more important for the "Voice of the Global South"

record in nuclear restraint, will be heard as Japan seeks to send a united message on non-proliferation from Hiroshima which was devastated by an American atomic bomb in 1945.



THE HINDU

Arsenic in water

- Though it is well known that ingesting high levels of arsenic from contaminated groundwater in India has been linked to a range of ailments, a recent peer-reviewed study suggests that even low levels of arsenic consumption may impact cognitive function in children, adolescents, and young adults.
- Also found that those exposed to arsenic had reduced grey matter (brain tissue that is vital to cognitive functions) and weaker connections within key regions of the brain that enable concentration, switching between tasks, and temporary storage of information.

- “Chronic exposure to arsenic could be creating a ‘silent pandemic’ affecting large portions of the global population



THE HINDU

Oil in EU

- Days after saying the European Union (EU) had to curb the import of refined petroleum products from India, the EU’s top foreign affairs and security official, Josep Borrell, suggested that EU entities buying refined products from India were primarily accountable for the leakage of Russian oil based products into the EU.



THE HINDU



POLIO

- Since 1988, when the World Health Assembly established the Global Polio Eradication Initiative (GPEI), wild poliovirus subtype-2 and subtype-3 have been successfully eradicated.
- The number of wild poliovirus cases across the world has sharply dropped by more than 99.9%.
- Today, Afghanistan and Pakistan are the only countries where indigenous wild poliovirus subtype-1 transmission continues uninterrupted.

About POLIO

- Polio, or poliomyelitis, is a disabling and life-threatening disease caused by the poliovirus.
- The virus spreads from person to person and can infect a person's spinal cord, causing paralysis (can't move parts of the body).
- There are three variations of poliovirus, called wild poliovirus type 1, 2, and 3 (WPV1, WPV2, and WPV3).
- Wild polio types 2 and 3 have been eradicated (no longer exist), and wild polio type 1 only exists in a few parts of the world. Polio type 1 is most likely to cause paralysis.

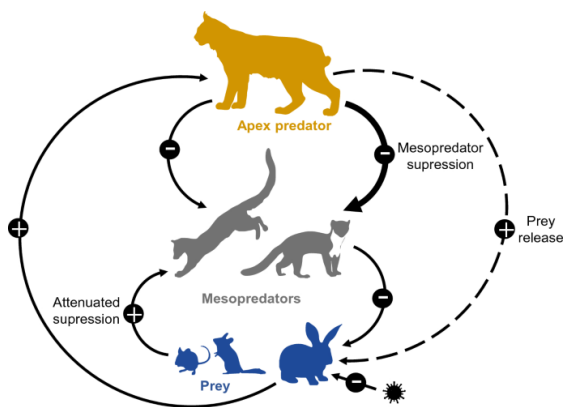
- There are two types of vaccines that can prevent polio:
- Inactivated poliovirus vaccine (IPV) is given as an injection in the leg or arm, depending on the patient's age. Only IPV has been used in the United States since 2000.
- The oral poliovirus vaccine (OPV) is still used throughout much of the world.
- The Polio vaccine protects children by preparing their bodies to fight the poliovirus.

THE HINDU

MESOPREDATORS

- Medium-sized carnivorous species mesopredators like coyotes or bobcats tend to move into human-dominated areas to avoid predation by larger carnivores, a phenomenon also known as the "human shield" effect.
- But this places the safety seeking species at considerably greater risk for mortality due to human activities.





MESOPREDATOR

- A mesopredator is a predator which occupies a mid-ranking trophic level in a food web.
- There is no standard definition of a mesopredator, but they are usually referred to as being medium-sized, compared to the apex predator and the prey in the food web.
- Mesopredators typically prey on smaller animals

THE HINDU

LAKE SHRINKAGE

- The amount of water stored in more than half of the largest lakes and reservoirs worldwide is declining (Science) due to a warming climate and increased human impacts.
- This underscores the importance of accounting for these impacts in future surface water resources management strategies.
- Combining satellite measurements with climate and hydrologic models,

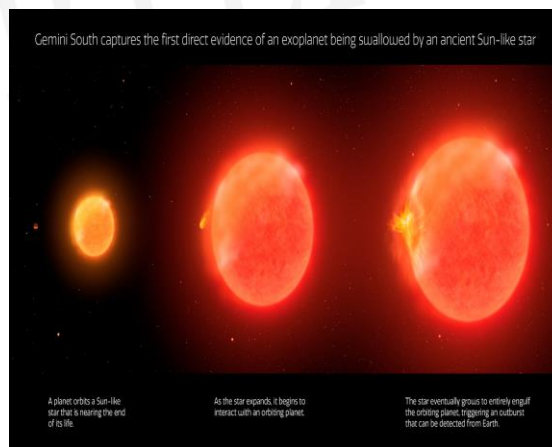
researchers have built a global dataset of decadal-scale trends in lake water storage from 1992 to 2020 for 2,000 of the world's largest lakes and reservoirs.



THE HINDU

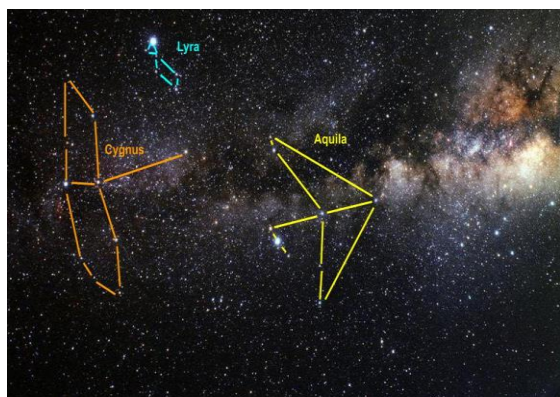
Fate of Earth

- As a star runs out of fuel, it will billow out to a million times its original size, engulfing any matter, including planets, in its wake



- The Aquila constellation is located in the northern sky, on the celestial equator.
- The constellation's name means "the eagle" in Latin.
- The constellation represents the eagle of the god Jupiter in Roman mythology. It was first catalogued by

the Greek astronomer Ptolemy in the 2nd century.



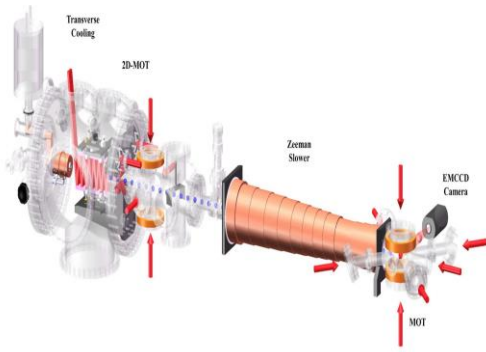
THE HINDU

Calcium 41

- Since its invention in 1947, carbon dating has revolutionized many fields of science by allowing scientists to estimate the age of an organic material based on how much carbon-14 it contains.
- However, carbon-14 has a half-life of 5,700 years, so the technique cannot determine the age of objects older than around 50,000 year.
- In 1979, scientists suggested using calcium-41, with a half-life of 99,400 years.
- It is produced when cosmic rays from space smash into calcium atoms in the soil and is found in the earth's crust, opening the door to dating fossilized bones and rock. But several problems need to be overcome before it can be used to reliably date objects.
- When an organic entity is alive, its body keeps absorbing and losing carbon-14 atoms. When it dies, this process stops and the extant carbon-14 starts to decay away.
- Using the difference between the relative abundance of these atoms in the body and the number that should have been there, researchers can estimate when the entity died.

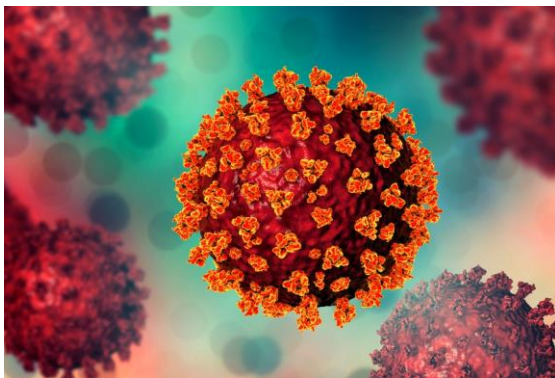
Atom trap trace analysis (ATTA)

- A technique called atom trap trace analysis (ATTA) as a solution. ATTA is sensitive enough to spot these atoms; specific enough to not confuse them for other similar atoms and fits on a table top. A sample is vaporized in an oven. The atoms in the vapor are laser-cooled and loaded into a cage made of light and magnetic fields.
- In ATTA, a laser's frequency is tuned such that it imparts the same energy as required for an electron transition in calcium-41.
- The electrons absorb and release this energy, revealing the presence of their atoms.



THE HINDU

(DPUD)



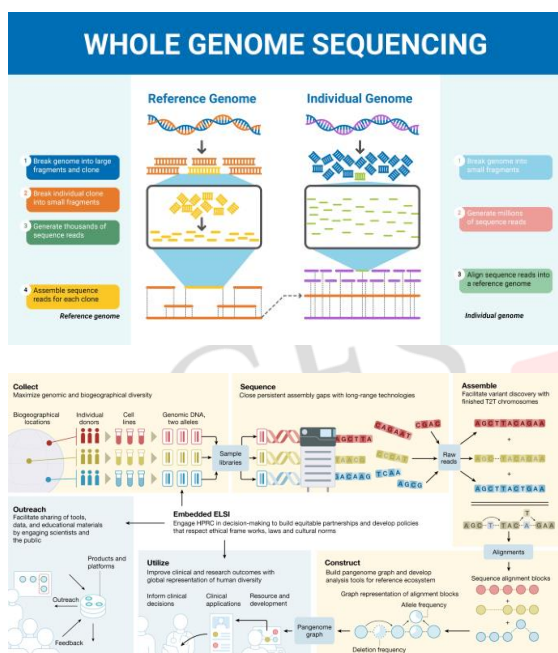
- Indian researchers have, for the first time, been able to synthesize small molecules that can effectively halt the infection of cells by SARS-CoV-2 and influenza viruses by targeting the hosts.
- In place of antivirals that directly target the virus in question, the team, co-led by researchers at IISER Mohali and IIT Ropar, attempted the host-directed therapy.
- Of the 28 molecules screened, one molecule 1, 3diphenylurea derivative (DPUD) was able to block both SARS-CoV-2 and influenza virus infection by almost 100% in cells without being toxic to the cells.

- “These molecules carry chloride ions into the cell, thereby leading to a large accumulation of chloride inside the cell, disturbing the chloride equilibrium.
- When the chloride equilibrium is disturbed, some endocytic pathways become non-functional. As a result, the viruses fail to enter the cells and establish infection

• THE HINDU



Pangenome map



What is a genome?

The genome is the blueprint of life, a collection of all the genes and the regions between the genes contained in our 23 pairs of chromosomes

What is a reference genome?

When genomes are newly sequenced, they are compared to a reference map called a reference genome.

This helps us to understand the regions of differences between the newly sequenced genome and the reference genome.

What is a pangenome map?

Unlike the earlier reference genome, which is a linear sequence, the pangenome is a graph.

The graph of each chromosome is like a bamboo stem with nodes where a stretch of sequences of all 47 individuals converge (similar), and with internodes of varying lengths representing genetic variations among those individuals from different ancestries.

Why is a pangenome map important?

Although any two humans are more than 99% similar in their DNA, there is still about a 0.4% difference between any two individuals.

This may be a small percentage, but considering that the human genome consists of 3.2 billion individual nucleotides, the difference between any two individuals is a whopping 12.8 million nucleotides.

A complete and error-free human pangenome map will help us

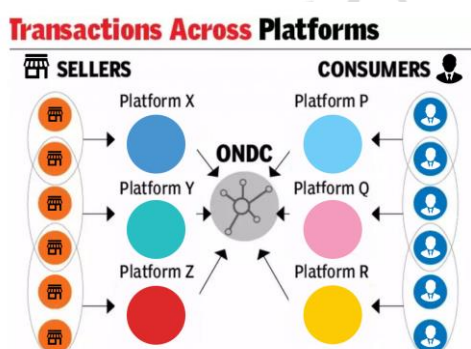
understand those differences and explain human diversity better.

It will also help us understand genetic variants in some populations, which result in underlying health conditions.

The pangenome reference map has added nearly 119 million new letters to the existing genome map and has already aided the discovery of 150 new genes linked to autism

THE HINDU

ONDC



What is the ONDC?

The government wants to change the fundamental structure of the e-commerce market from the current “platform centric model to an open network model”. The ONDC is modelled after the Unified Payments Interface (UPI) project that is seen as a success by many.

The UPI project allows people to send or receive money irrespective of the payments platforms on which they are registered. Similarly, the government wants to ensure that buyers and sellers of goods in the e-commerce market can transact regardless of the platforms on which they are registered.

So under ONDC, a buyer registered on Amazon, for example, may directly purchase goods from a seller who sells on Flipkart.

To make such transactions a reality, the government has ordered companies to list themselves on the ONDC

Why is the Centre pushing for it?

The government believes that the ONDC will put an end to the domination of the e-commerce market by a few large platforms. It says that the e-commerce market is currently broken into “silos” operated and dominated by private platforms.

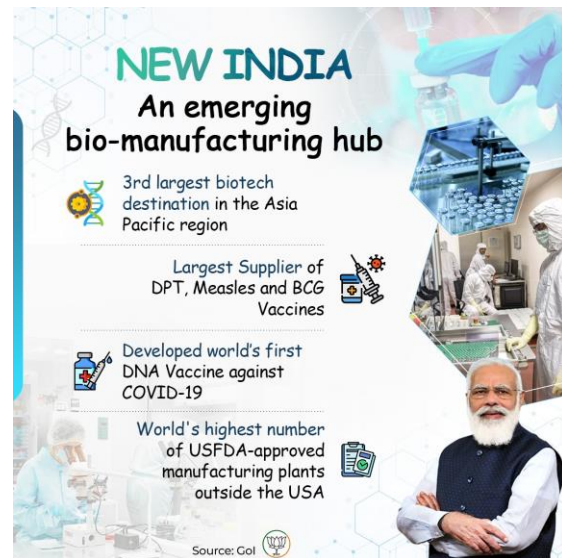
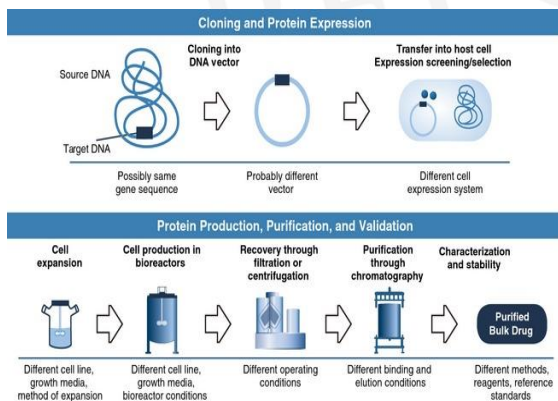
Amazon and Flipkart, for instance, have been accused of promoting certain seller entities in which they hold indirect stakes.



THE HINDU

Bio manufacturing map

Bio manufacturing is a type of manufacturing or biotechnology that utilizes biological systems to produce commercially important biomaterials and biomolecules for use in medicines, food and beverage processing, and industrial applications.



In March 2021, the Quad (Australia, India, Japan, and the United States) set up a Critical and Emerging Technology Working Group to facilitate cooperation, monitor trends, and scout for opportunities related to developments in critical and emerging technologies, that included biotechnology.



Bio manufacturing uses living systems, particularly microorganisms and cell cultures, to produce molecules and materials on a commercial scale.

It has the potential to transform the global industrial system, with up to 60% of physical inputs to the global economy expected to be producible using this technology.

India's National Biotechnology Development Strategy also envisions the country as a "Global Bio-manufacturing Hub" by 2025.

The U.S. has significant funding capability, while all three (Japan, Australia, and the U.S.) also possess advanced biotechnology innovation ecosystems and intellectual property.

India has skilled manpower and the potential to provide affordable scale.

Concerns about China's dominance in APIs pushed India to launch a production linked incentive scheme that allocated \$2 billion to the pharmaceutical sector to make biopharmaceuticals, APIs, key starting materials, and related products. Such dependence on the biomanufacturing sector will be detrimental to both India and the Quad.

To scale up the biomanufacturing sector, India needs to uplift its workforce quality. While there are many life science professionals in the

country, they lack access to cutting-edge technology and training.

To address this, permanent training facilities can be established in universities around the Quad hub, with experts from other Quad countries providing the training.

To facilitate cross Quad collaboration, the biomanufacturing hub can house all current bilateral government efforts and establish a research collaboration office for this purpose.

The hub can also harmonise language, regulations, and data sharing regarding biomanufacturing to secure supply chains for Quad nations and facilitate international collaboration.

THE HINDU

Astara Rasht valley

The **Rasht Valley** is located in Tajikistan and composes a significant portion of the Region of Republican Subordination, including the six districts of Lakhsh, Rasht, Roghun, Tavildara, Tajikobod and Nurabad.

Historically the Rasht Valley has been called Karotegin or Karategin. During the 1992-1997 Tajikistan Civil War, the region was a stronghold for

forces opposed to the government of Emomalii Rahmon and became the site of numerous battles. Notably, four members of the United Nations Mission of Observers in Tajikistan were murdered in the Garm district in 1998. From the 1920s until 1955 the Rasht Valley was within the Gharm Oblast.



THE HINDU



ORDINANCE, 239AA

- A Constitution Bench headed by the Chief Justice of India D.Y. Chandrachud on May 11 held that the Delhi government can make laws and administer civil services in the national capital.
- The court limited the role of the Lieutenant Governor (LG), an arm of the Centre, over bureaucrats in the capital to three specific areas public order, police, and land.
- The judgment intended to strike a balance between the national interests of the Centre in the capital and the authority of an elected Delhi government to legislate and administer meaningfully through “professional” civil service officers deputed to its departments.
- However, on May 19, the Centre turned the tables on the judgment.
- The President promulgated the Government of National Capital Territory of Delhi (Amendment) Ordinance, 2023 to make a fresh claim of power over the services in the capital.
- The stated aim of the Ordinance is to “provide for a comprehensive scheme of administration of services” which “balances the local and domestic interests of the people of Delhi with the democratic will of

the entire nation reflected through the President of India

What does the Ordinance say?

- The government has used the Ordinance route to indirectly return to its original position which it had taken in May 21, 2015 through a Home Ministry notification
- The Ordinance forms a “permanent” National Capital Civil Service Authority (NCCSA) with the Chief Minister as chairperson, and the Chief Secretary and Principal Home Secretary as Member and Member Secretary, respectively.
- The NCCSA exercises authority over civil service officers working in all Delhi government departments except those in public order, police and land
- The ordinance has put the log back in the driver’s seat by giving him the power to take a final call on any decision taken by the nccsa regarding services

What is an ordinance and who makes it?

- Under the Constitution, the power to make laws rests with the legislature.
- However, in cases when Parliament is not in session, and ‘immediate action’ is needed, the President can issue an ordinance.

- An ordinance is a law and could introduce legislative changes.
- Once the ordinance is laid in Parliament, the government introduces a Bill addressing the same issue. This Bill is supposed to highlight the reasons that necessitated the issue of the Ordinance.
- 38th amendment act inserted a new clause (4) in article 123 stating that the president's satisfaction while promulgating an ordinance was final and could not be questioned in any court on any ground. However, the 44th amendment to Indian constitution reversed it and made the president's satisfaction to bring the ordinance justiciable.

WHAT IS ARTICLE 239AA OF THE CONSTITUTION?

- Inserted into the Constitution by the 69th Amendment Act, 1991, Article 239AA conferred special status on Delhi following the recommendations of the S Balakrishnan Committee that was set up in 1987 to look into Delhi's demands for statehood.
- According to this provision, the act of Delhi will have an administrator and a legislative assembly. Subject to the provisions of the constitution, the legislative assembly, "shall have the

power to make laws for the whole or any part of the act with respect to any of the matters in the state list or concurrent list in so far as any such matter is applicable to union territories," except on the subjects of police, public order, and land.

THE HINDU

INS SINDHURATNA

- INS Sindhuratna (S59) (Jewel of the Sea)[2] is a Sindhu Ghosh-class diesel-electric submarine of the Indian Navy



THE HINDU

FIPIC

- The Forum for India–Pacific Islands Cooperation (FIPIC) was launched during Hon'ble Prime Minister, Mr. Narendra Modi's visit to Fiji in November 2014.
- FIPIC includes 14 of the island countries Cook Islands, Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.

- Though these countries are relatively small in land area and distant from India, many have large exclusive economic zones (EEZs), and offer promising possibilities for fruitful cooperation.
- India's focus has largely been on the Indian Ocean where it has sought to play a major role and protect its strategic and commercial interests. The FIPIC initiative marks a serious effort to expand India's engagement in the Pacific region.
- At this moment, total annual trade of about \$300 million between the Indian and Pacific Island countries, whereas exports are around \$200 million and imports are around \$100 million.



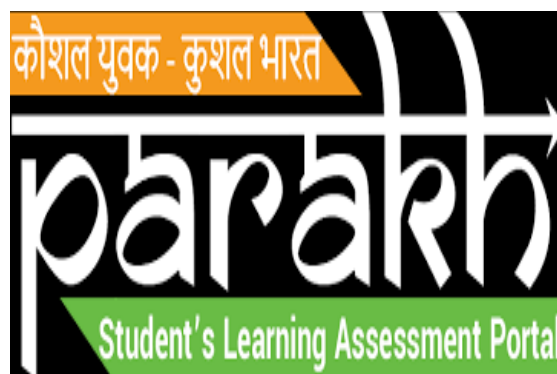
- The third forum for India-Pacific islands co-operation (FIPIC Summit), which was held today at Port Moresby was jointly hosted with Papua New Guinea.
- Prime minister of India co- chaired the summit with PM of Papua New Guinea.

- 1st Summit-Suva, Fiji
- 2nd Summit-Jaipur, India

THE HINDU

PARAKH

- PARAKH, the National Assessment Centre, which has been set up as an organization under the National Council of Educational Research and Training (NCERT).
- The mandate of PARAKH is to work on bringing the school Boards across States and Union Territories on a common platform.
- The Full Form of PARAKH is Performance Assessment, Review, and Analysis of Knowledge for Holistic Development.
- Prime Minister Narendra Modi made the announcement to build a National Assessment Center, PARAKH, on September 11th, 2020, while speaking at a conference on "School Education in the 21st Century"



THE HINDU

CAPEX

- Capital expenditures are payments made for goods or services that are recorded or capitalized on a company's balance sheet instead of expensed on the income statement.
- Spending is important for companies to maintain existing property and equipment, and to invest in new technology and other assets for growth.
- If an item has a useful life of less than one year, it must be expensed on the income statement rather than capitalized, which means it isn't considered CapEx.
- Unlike CapEx, operating expenses (OpEx) are shorter-term expenses used for the day-to-day operations of a business.

THE HINDU

Indo-Pacific Economic Framework for Prosperity (IPEF)

- India signalled its readiness to be part of a new economic initiative led by the U.S. for the region, as Prime Minister Narendra Modi joined U.S. President Joseph Biden, Japanese Prime Minister Fumio Kishida and leaders of 10 countries, who participated virtually, for the launch of the Indo-Pacific Economic Framework for Prosperity (IPEF) in Tokyo on Monday.
- The negotiations for the IPEF, which will begin on Tuesday, are expected to centre around four main pillars, including trade, supply chain resiliency, clean energy and decarbonisation, and taxes and anti-corruption measures.
- The grouping, which includes seven out of 10 members of the Association of South East Asian Nations (ASEAN), all four Quad countries, and New Zealand, represents about 40% of global GDP.
- “India will work together with [other IPEF countries] to build an inclusive and flexible Indo-Pacific Economic Framework,”
- Resilient supply chains must be based on three-pillar foundation of trust, transparency and timeliness

and I am sure that this framework will make these pillars strong and lead to peace and prosperity in the Indo-Pacific region.

- IPEF would not be a “free trade agreement”, nor are countries expected to discuss reducing tariffs or increasing market access.
- In that sense, the IPEF would not seek to replace the 11-nation CPTPP (Trans-Pacific Partnership) that the U.S. quit in 2017, or the RCEP, which China, and all of the other IPEF countries (minus the U.S.) are a part of.
- Three ASEAN countries considered closer to China Myanmar, Cambodia and Laos are not members of the IPEF, however.

THE HINDU

Family planning

- India’s family planning programme has improved access to contraceptives. This has led to a reduction in the Total Fertility Rate from 3.4 in 1990-92 to 2.0 in 2019-21, according to the National Family Health Survey (NFHS).
- However, there are two themes that need further attention. First, according to NFHS-5 and the 2022 report by the United Nations Population Fund, there is a rise in

adolescent childbearing in some States such as Tripura and Meghalaya.

- Second, COVID-19 has had a severe impact on economic resources and access to education, thereby influencing the choices women and the youth make about their sexual and reproductive health.
- In order to meet the Sustainable Development Goal of Family Planning by 2030, India now needs to focus on improving access to family planning services for not just the adult population, but also the youth.
- In India, frontline health workers have contributed significantly in implementing Mission Parivar Vikas, which aims to accelerate access to high-quality family planning choices, to successfully increase the modern Contraceptive Prevalence Rate (mCPR), especially among female non-users from vulnerable communities.
- We need to strengthen the capacity of health workers in using the Family Planning Logistics Management Information System a dedicated software to ensure the smooth forecasting, procurement and distribution of family planning commodities across all the levels of health facilities to ensure the availability of and access to

contraceptives by marginalised communities.

- The Men in Maternity (MiM) study conducted in Delhi demonstrated the effectiveness of teaching young couples about contraceptives and promoting joint decision making in choosing family planning methods.
- Several other examples of involving men in the family planning discourse include the PRACHAR project in Bihar, the Yaari Dosti programme in Mumbai, and the GEMS project in Goa.
- Many of the programmes in public health have also started leveraging the capabilities of the private sector to improve service delivery.
- For instance, leveraging India Post and partnering with a third-party logistics partner through the Informed Push Model showcases how the private sector can be effectively engaged to provide family planning products at health facilities and make them available when the community needs them.

THE HINDU

Cryptocurrency price fall

The story so far:

- Bitcoin, the most dominant cryptocurrency around, is down

more than 50% from an all-time high price of \$68,000, which it achieved just last November.

- It has, in fact, lost a fourth of its value in the last 30 days.
- Bitcoin isn't alone. The prices of almost all cryptocurrencies have seen a similar steep downward movement over the last month.

Is the Bitcoin price fluctuation a new phenomenon?

- It isn't. Its history is filled with many instances of big price falls and big price rises within a short period of time. Last year, after hitting a new peak of over \$63,000 in April, its value more than halved by June.
- China's crackdown on cryptocurrency mining operations was seen as the main reason for this fall.
- What's new about this phase of the cryptocurrency price fall? The context is, of course, new.
- This big sell-off phase has come about at a time when the war in Ukraine and the subsequent disruptions to the global supply chain have resulted in record-high inflation throughout the world. Inflation in the U.K., for instance, is at its highest levels in 40 years.

What vulnerability was revealed during this crash?

- The Bitcoin value also got impacted by what's essentially a sub-story in the entire episode the fate of a stable coin called TerraUSD.
- Stable coins are a type of cryptocurrency that seek to hold their value steady, even if the Bitcoins of the world have a rocky journey. This, they do by pegging to a currency such as the dollar.
- TerraUSD's idea was to maintain a value of \$1. The way it maintains its peg is through an algorithmic solution, wherein if it drops below \$1, a trader is encouraged to receive a 'sister' token called Luna at a discounted price in exchange.
- The TerraUSD, for which Luna was exchanged, then goes out of circulation. The supply falls, and the peg to \$1 is achieved again.

THE HINDU

Disaster struck Dima Hasao

The story so far:

- Disaster struck Dima Hasao, central Assam's hill district, in mid-May after incessant heavy rainfall.
- The 170 km railway line connecting Lumding in the Brahmaputra Valley's Hojai district and Badarpur in the

Barak Valley's Karimganj district was severely affected

How severe has the rain been in Assam?

- Assam is used to floods, sometimes even four times a year, resultant landslides and erosion.
- But the pre-monsoon showers this year have been particularly severe on Dima Hasao, one of three hill districts in the State.
- Landslips have claimed four lives and damaged roads.

Why is the railway in focus post-disaster?

- Dima Hasao straddles the Barail, a tertiary mountain range between the Brahmaputra and Barak River basins.
- The district is on the Dauki fault (the prone-to-earthquakes geological fractures between two blocks of rocks) straddling Bangladesh and parts of the northeast. British engineers were said to have factored in the fragility of the hills to build the railway line over 16 years by 1899.
- The end result was an engineering marvel 221 km long over several bridges and through 37 tunnels, laid along the safer sections of the hills.
- A project to convert the metre gauge track to broad gauge was

undertaken in 1996 but the work was completed only by March 2015 because of geotechnical constraints and extremist groups.

- The broad-gauge track was realigned to be straighter, but a 2009-10 audit report revealed that the project had been undertaken without proper planning and visualisation of the soil strata behaviour.
- Citing an engineering and geology expert, the report gave the example of the disaster-prone Tunnel 10 on the realigned track that was pegged 8 meters below the bed of a nearby stream.
- Retired railway officials admitted that faulty experiments and the "greed" of a few not only made the track vulnerable to the forces of nature but also escalated the cost of the project from ₹1,677 crore to ₹5,500 crore.

Is only the railway at fault?

- There is a general consensus that other factors have contributed to the situation Dima Hasao is in today.
- Roads in the district, specifically the four-lane Saurashtra-Silchar (largest Barak Valley town) East-West Corridor, have been realigned or deviated from the old ones that were planned around rivers and largely weathered the conditions.

How vital are the rail and highway through Dima Hasao?

- Meghalaya aside, Dima Hasao is the geographical link to a vast region comprising southern Assam's Barak Valley, parts of Manipur, Mizoram and Tripura.
- This region has an alternative, less disaster-prone highway through Meghalaya linking the country beyond and may not thus be impacted by any damage to the four-lane highway through Dima Hasao, once it is completed.
- But the Lumding-Badarpur railway line has been the lifeline for this region since goods trains started operating in March 2015.
- Moreover, this track is vital for India's Look East policy that envisages shipping goods to and from Bangladesh's Chittagong port via Tripura's border points at Akhaura and Sabroom, the last railway station near the Feni River that serves as the India-Bangladesh border.
- The Dima Hasao line also links the ambitious 111 km Jiribam-Imphal railway project in Manipur being built on similar, landslide-prone terrain.
- There are plans to extend the Jiribam-Imphal line, which will have India's tallest railway bridge and the

longest railway tunnel, to Myanmar and beyond.

- Such plans seem distant with Tripura and Mizoram indicating they cannot always rely on the rail connectivity through Dima Hasao.

THE HINDU

Mutant tomatoes

- According to estimates made in 2020 nearly 690 million people, who make up close to 8.9% of the world's population, are hungry. One of the main reasons for this hunger is micronutrient malnutrition.
- A paper in Nature Plants by Jie Li et al tries to address vitamin D deficiency by genetically modifying tomato plants so that the fruit contains a significant amount of provitamin D3 which is a precursor from which humans can make vitamin D.
- Vitamin D is needed for a process known as calcium homeostasis which is the maintenance of constant concentration of calcium ions in the body.

Mutant tomatoes

- Recently discovered pathway in tomato plants to produce cholesterol and a substance called steroidal glycoalkaloid (SGA for

short) using the CRISPR-Cas9 gene editing tool.

- This inhibits the conversion of 7-DHC to cholesterol and instead the former accumulates in the leaves, green and ripe fruits.
- Usually, in untreated tomato plants, 7-DHC is present in leaves and to a lower extent in green fruit, but not in ripe fruit which is the most consumed of the lot.
- The researchers showed that in their modified plants, the suppression of the activity of a particular gene, “led to substantial increases of 7-DHC levels in leaves and green fruit,” and, according to the paper, while levels of 7-DHC were lower in ripe fruits of the mutant, they remained high enough that if converted to Vitamin D3 by shining UVB light, the amount in one tomato would be equivalent to that in two eggs or 28 grams of tuna, both of which are recommended sources of vitamin D.
- In addition, the researchers report that the mutants showed a reduction in their leaves of a substance called alpha-tomatine, and they comment that this may even be beneficial because of alpha-tomatine’s reported toxicant or anti-nutritional activity.

THE HINDU

Heatwaves and Inflation

- Moody’s Investors Service said on Monday that the prolonged heatwaves seen in India this summer were credit negative as they would exacerbate inflation pressures and challenges to growth.
- The agency added that the ban on wheat exports would hurt growth and reflected a missed opportunity to capture the global market.
- Noting that New Delhi experienced its fifth heatwave since March on May 15, Moody’s pointed out that such waves usually occurred in May and June.
- “The prolonged high temperatures, which are affecting much of the northwest of the country, will curb wheat production and could lead to extended power outages, exacerbating already high inflation and hurting growth, a credit negative.
- Moody’s warned of prolonged power outages in industrial and agricultural production if this persisted, leading to significant cuts to output and weighing further on India’s economic growth ‘particularly if the heatwaves continue beyond June’.
- Inflation, it noted, will only be partially alleviated by measures such

as the central bank's policy rate hikes, cap on power prices in exchanges, and the wheat export ban.

- "Given the prominence of cereals and food more generally in India's consumption, elevated food prices could add to social risks if they persist.

THE HINDU

GES
REPORTER

AI and Copyrights

- U.S. Supreme Court in the Andy Warhol Foundation for the Visual Arts Inc. versus Goldsmith et al. has added more unpredictability to the process of being exempted from copyright infringement liabilities.
- The judgment is set to have implications for how we regulate a powerful form of artificial intelligence.



- **What is the AWF case?**
 - Known for her concert and portrait shots, Lynn Goldsmith photographed the famous musician Prince in 1981.
 - One of those photos was licensed in 1984 to Vanity Fair magazine for use as an “artist reference”.
 - The license specifically said the illustration could appear once as a full-page element and once as a one

quarter page element, in the magazine’s 1984 November issue

- Mr. Warhol additionally created 13 screen prints and two pencil sketches

What did the courts find?

- First, a district court summarily ruled in favor of the AWF, opining that Mr. Warhol’s use of Ms. Goldsmith’s photo constituted fair use. The court banked on the first factor and held that Mr. Warhol’s work was “transformative” as they “have a different character, give Goldsmith’s photograph a new expression, and employs new aesthetics with creative and communicative results distinct from Goldsmith’s

How does this affect generative AI?

- While this dispute arose in the context of the use of a photograph as an artistic reference, the implications of the court’s finding are bound to ripple across the visual arts at large.
- The majority position could challenge the manner in which many generative artificial intelligence (AI) tools, such as ChatGPT4, Midjourney, and Stable Diffusion, have been conceived. These models’ makers ‘train’ them on text, photos,

and videos strewn around the internet, copyrighted or not

What about the implications of Indian copyright law?

- There may not be any direct implications for Indian copyright law, as the framework of exceptions here is different.
- India follows a hybrid model of exception in which fair dealing with copyrighted work is exempted for some specific purposes under Section 52(1)(a) of the Copyright Act 1957. India also has a long list of enumerated exceptions.

judiciary, justice, a preamble goal, would remain illusory. The district judiciary is, in most cases, also the court which is most accessible to the litigant



- “This doctrine is only the logical conclusion of separation of powers and ensures that the independence of the judiciary is secured.

THE HINDU

Independence of the judiciary

- The Supreme Court has held that the independence of district judiciary is part of the basic
- Structure of the Constitution and judicial independence from the executive and the legislature requires the judiciary to have a say in matters of finances.
- “The independence of the district judiciary must also be equally a part of the basic structure of the Constitution. Without impartial and independent judges in the district

THE HINDU

Sengol

- The sengol will be presented to the prime minister after this revered ceremony and placed in a glass case next to the speaker's seat in the house.

Traditional chola practice

- It was a traditional Chola practice for samayacharyas (spiritual leaders) to lead the coronation of kings and sanctify the transfer of power, which is also considered a kind of recognition for the ruler
- The single ceremony seemingly took place minutes before India's first

Prime Minister Jawaharlal Nehru hoisted the national flag and made his famous “tryst with destiny” speech on August 15, 1947. It had been kept at his Prayagraj residence-turned-museum till now.

- Sacred sengol-vesting model of Chola kings of Tamil Nadu for transfer of power from the British to Indians. The then prime minister had been handed over the sensor with the Nandi (bull deity) finial amid the singing of the sacred Tamil text Thuvara symbolic of divine blessings and command to rule justly and fairly.



- They found that the golden scepter was studded with jewels and worth ₹15,000 at that time and was made by Numidia Bangura Chatty and Sons, jewelers and diamond merchants of Chennai.

THE HINDU

Supercomputing

- India is set to dramatically scale up its supercomputing prowess and install an 18-petaflop system over the course of this year, Earth Sciences Minister Kiren Rijiju said on Wednesday.
- Flops (floating point operations per second) are an indicator of the processing speed of computers and a petaflop refers to 1,000 trillion flops.
- Processing power to such a degree greatly eases complex mathematical calculations required, for, among other things, forecasting how the weather will be over the next few days all the way up to two or three months ahead.
- Currently India’s most powerful, civilian supercomputers Pratyush and Mihir with a combined capacity of 6.8 petaflops are housed at the Indian Institute of Tropical Meteorology, Pune, and the National Centre for Medium-Range Weather Forecasting (NCMRWF), Noida, respectively



reproducing a different decade. Intended as a way to help people with dementia unlock their memories, it soon becomes a magnet for people eager to escape the modern.

THE HINDU

- The fastest high-performance computing system in the world is currently the Frontier Cray system at Oakridge National Laboratory, United States. This has a peak speed of one exa-flop (or about 1,000 petaflops).

THE HINDU

Booker prize

- Bulgarian writer Georgi Gospodinov and translator Angela Rodel won the International Booker Prize on Tuesday for *Time Shelter*, a darkly comic novel about the dangerous appeal of nostalgia World.



- *Time Shelter* imagines a clinic that recreates the past, with each floor

Article 239AA and ordinance

- The President of India exercised legislative power under Article 123 of the Constitution, during the period Parliament was in recess, to promulgate “The Government of National Capital Territory of Delhi (Amendment) Ordinance, 2023” (Ordinance).
- Essentially, the Court interpreted that out of the 66 entries in List II (the State list), while the executive power of the Government of NCTD covers 63 entries, that of the Union of India is restricted to the remaining three: public order (entry 1), police (entry 2) and land (entry 18).
- What the ordinance did was to read/insert entry 41 of List II (State List) into Article 239AA (3)(a), thereby expanding the scope of excepted matter from three (1, 2, 18) to four (1, 2, 18, 41)
- The power conferred on Parliament under Article 239AA(7)(a) is to make laws for giving effect to or supplementing the provisions contained in various clauses of Article 239AA and for all matters incidental or consequential thereto.
- Such a power cannot be pressed into action to amend Article 239AA (3)(a) of the Constitution.
- Significantly, Article 239AA (7)(b) stipulates that Parliament’s law-making under Article 239AA(7)(a) shall not be deemed to be an amendment of the Constitution for the purposes of Article 368.
- Article 123 is no substitute for Article 368 (amendment of the Constitution) in Part XX.
- Besides, when a Constitution Bench (five judges) of the Supreme Court declares/interprets the law (Article 239AA (3)(a)), the same is binding on all courts and authorities in India in terms of Articles 141 and 144, respectively.
- Article 141 says that the law declared by the Supreme Court shall be binding on all courts within the territory of India and Article 144 directs that all authorities civil and judicial, in the territory of India, shall act in aid of the Supreme Court.
- In the landmark seven-judge Bench verdict of the Supreme Court in the matter of Krishna Kumar Singh vs State of Bihar (2017) 2 SCC 136, the Court held that the satisfaction of the President under Article 123 is not immune from judicial scrutiny; powers under Article 123 is not a

parallel source of law-making or an independent legislative authority.

THE HINDU

Judges recusal

Why do judges recuse?

- Whenever there is a potential conflict of interest, a judge can withdraw from a case to prevent the perception that the judge was biased while deciding a case. This conflict of interest can arise in many ways from holding shares in a litigant company to having a prior or personal association with a party.
- Another common reason is when an appeal is filed in the Supreme Court against a High Court judgment delivered by the concerned judge before his elevation. The practice stems from the cardinal principle of due process of law *Nemo iudex in sua causa*, that is, no person shall be a judge in his own case.
- “Another principle guiding judicial recusals is ‘justice must not only be done but must also be seen to be done’ propounded in 1924 in *Rex v. Sussex Justices* by the then Lord Chief Justice of England.
- By taking the oath of office, judges promise to perform their duties, ‘without fear or favour, affection or

ill will’, in accordance with the Third Schedule of the Constitution.

- “Another principle guiding judicial recusals is ‘justice must not only be done but must also be seen to be done’ propounded in 1924 in *Rex v. Sussex Justices* by the then Lord Chief Justice of England.
- By taking the oath of office, judges promise to perform their duties, ‘without fear or favor, affection or ill will’, in accordance with the Third Schedule of the Constitution.

What is the procedure for recusal?

- There are two kinds of recusals an automatic recusal where a judge himself withdraws from the case, or when a party raises a plea for recusal highlighting the possibility of bias or personal interest of the judge in the case.
- The decision to recuse rests solely on the conscience and discretion of the judge and no party can compel a judge to withdraw from a case.
- While judges have recused themselves even if they do not see a conflict but only because such apprehension was cast, there are also several instances where judges have refused to withdraw from a case.

DO JUDGES HAVE TO RECORD A REASON FOR RECUSAL?

- SINCE THERE ARE NO STATUTORY RULES GOVERNING THE PROCESS, IT IS OFTEN LEFT TO THE JUDGES THEMSELVES TO RECORD REASONS FOR RECUSALS.
- SOME JUDGES SPECIFY ORAL REASONS IN OPEN COURT WHILE OTHERS ISSUE A WRITTEN ORDER RECORDING THE REASONS. IN OTHER CASES, THE REASONS ARE SPECULATIVE.

WHAT RULES HAS SUPREME COURT FORMULATED IN THE PAST?

- In Ranjit Thakur versus Union of India (1987), the SC held
- “The proper approach for the Judge is not to look at his own mind and ask himself, however honestly, “Am I biased?” but to look at the mind of the party before him,” the Court ruled.

WHAT RULES HAS SUPREME COURT FORMULATED IN THE PAST?

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- SUPREME COURT ADVOCATES-ON-RECORD ASSOCIATION VERSUS THE UNION OF INDIA (2015), THE COURT OBSERVED THAT WHERE A JUDGE HAS A PECUNIARY INTEREST, NO FURTHER INQUIRY IS NEEDED AS TO WHETHER THERE WAS A ‘REAL DANGER’ OR ‘REASONABLE SUSPICION’ OF BIAS.
- HOWEVER, OTHER CASES REQUIRE SUCH AN INQUIRY, WITH THE RELEVANT TEST BEING THE ‘REAL DANGER’ TEST WHETHER THERE IS A ‘REAL DANGER’ OF BIAS, TO ENSURE THAT THE COURT IS THINKING IN TERMS OF POSSIBILITY RATHER THAN THE PROBABILITY OF BIAS.



THE HINDU

GES
REPORTER



SC ON DEFAULT BAIL

- Recently, a Division Bench of the Supreme Court, in Ritu Chhabria v. Union of India, affirmed an under trial's right to be released on default bail in the event of the investigation remaining incomplete and proceeding beyond the statutory time limit.
- It frowned upon the practice of investigative agencies charge sheeting an accused despite the investigation being unfinished.
- It held that the right to be released on bail will not be extinguished on the mere filling of a preliminary charge sheet.
- It concluded that an accused's right to seek default bail would be terminated only upon completion of the investigation within the statutory time limit.
- Within the constitutional scheme of things, all judges of the Supreme Court are equal in terms of their judicial powers.
- However, the CJI enjoys special administrative powers such as constituting Benches and assigning matters and references for reconsideration of a larger Bench.
- The CJI is known as the 'Master of the Roster.' This is why he is

regarded as 'first amongst equals' in relation to companion judges.

- But in any given Bench including the CJI, the vote or power given to the CJI is the same as that given to his companion judges.



THE HINDU

Higher education



- Faculty shortages have existed in India's higher education sector at least since the 1980s, but seem to have become permanent today.
- The paucity of a sufficient number of faculty members undermines the growth of the country's knowledge sector and hinders its aspiration to be recognized as a "Vishwa guru".
- While the government does collect data on colleges and universities, including the number of faculty

members, for the annual All India Survey of Higher Education (AISHE), this is a voluntary process for various institutions.

- The information provided is not verified by any independent agency.
- Stakeholders often misunderstand faculty shortages to be a quantitative issue.
- The nature and scope of the shortage is actually more complex.

THE HINDU

Hysterectomy

- The Union Health Ministry recently urged State governments to audit hysterectomy trends in public and private hospitals, in response to a Supreme Court petition arguing that women from marginalized locations are at risk of unjustified hysterectomies for economic gains and exploitation.
- A hysterectomy is a surgical procedure to remove the womb (uterus)

What are the criteria for getting a hysterectomy?

- The highest percentage of hysterectomies were to treat excessive menstrual bleeding or pain (51.8%); 24.94% for fibroids; 24.94% for cysts and 11.08% for uterine

disorder or rupture, according to NFHS-5 data.

- Yet, studies have shown that “many of these causes were considered to be treatable and surgery could be avoided”

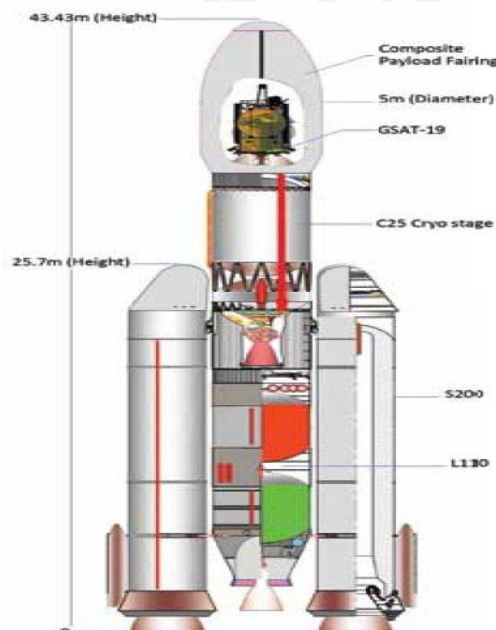
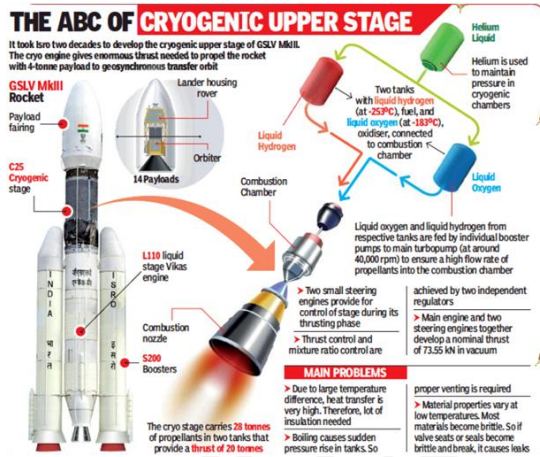
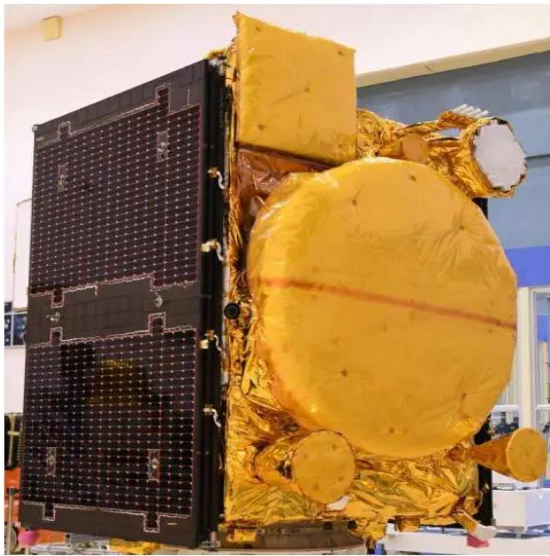
What measures has the govt taken?

- Recommended setting up district, State level, and national hysterectomy monitoring committees to monitor and collect data on age, mortality, and occupations, among other details.
- The monitoring committees are also tasked with creating awareness, among both practitioners and patients, about bodily anatomy, the role of the uterus, and when hysterectomies are actually indicated
- The government’s flagship health insurance program, the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana provides health cover of ₹5 lakhs for 1,949 procedures, including hysterectomies.



THE HINDU

NVS-01



- Indian Space Research Organisation (ISRO) successfully placed the nvs-01

navigation satellite, weighing about 2,232 kg, into a geosynchronous transfer orbit.

- The gslvf12 is the 15th flight of India's gslv and the 9th flight with indigenous cyro stage.
- This is the 6th operational flight of gslv with an indigenous cryogenic stage.
- The nvs-01 carried navigation payloads l1, l5, and s bands. Interestingly, for the first time, an indigenous atomic clock was flown in nvs-01.
- Geosynchronous satellite launch vehicle (gslv) mission is designed to deploy the nvs-01 navigation satellite, weighing about 2232 kg, into a geosynchronous transfer orbit. Subsequent orbit raising maneuvers will be used for taking the satellite to the intended orbit.
- Nvs-01 is the first of the second-generation satellites envisaged for navigation with Indian constellation (navic) services. Nvs series of satellites will sustain and augment the navic with enhanced features.

NVS-01

LAUNCH PROVIDER AND MISSION OPERATOR
ISRO - Indian Space Research Organization

MISSION PROJECT
Navigation with Indian Constellation (NavIC)

PAYLOAD
NVS-01 (replacing IRNSS-1G)
Payload mass: ~2202 kg | Configuration: 1-2K Bus
NVS-01 is the first of the second generation satellites envisaged for the NavIC services. This series incorporates L, S and S band signals additionally to enable the services. For the first time, an indigenous atomic clock (BAU) will be flown on NVS-01. Replacing Payload (CP) Provider.

LAUNCH WINDOW
MAY 29 05:12Z UTC 2023 MAY 29 01:12 EDT 08:12 MSK
(Orbit: Geosynchronous Equatorial Orbit)

LAUNCH VEHICLE
GSLV Mk2 (Flight 12)
Height: 51.7 m
Width: 5.2 m
LV mass: 420 tons

ENGINE BLOCKS

STAGE/ENGINES	PROPELLANTS	MAX THRUST
3rd STAGE 1 x CE-7.5 (solid)	LOX / LRL	73.55 kN
2nd STAGE 1 x Vikas 4B (solid)	NO ₂ / UDMT	804.9 kN
1st STAGE 1 x S139 motor (solid)	HTRP	~7800 kN
BOOSTERS 4 x L40 (solid) 4 x Vikas 2B (solid)	NO ₂ / UDMT	

LAUNCH SPACEPORT
Second Launch Pad, Satish Dhawan Space Centre - SHAR, India (Republic of India)

DESTINATION
Geosynchronous Orbit (GSO) - (GSO) Longitude: 129.31°E Inclination: 5.1°

RECOVERY
LAUNCH VEHICLE IS EXPENDABLE

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THE HINDU

Iron fortification

- Iron is an essential mineral required for many bodily functions, including the formation of haemoglobin, but can be harmful when taken in excess. One of the methods suggested for the treatment of iron deficiency anaemia is the fortification of food with iron.
- Typically, a chosen food staple such as wheat, rice, or even salt, is fortified to provide up to two-thirds (10 mg/day) of the iron requirement of adult women, and almost the entire daily requirement of men.
- Thus, excess consumption of iron can occur if one habitually consumes a balanced quality diet, to begin with, or exceeds limits for consumption of the fortified food.
- Studies have shown that unabsorbed iron can lead to inflammation in the

gastrointestinal lining and disrupt the colonic microbiota with long term consequences. The irritation of the lining may present itself clinically as abdominal cramps, constipation, or diarrhoea. In addition, the irritation of mucosa can also lead to gastrointestinal blood loss.

- An excess of iron in the gastrointestinal tract can impair absorption of other minerals.
- A more pressing worry is that excess iron has been closely linked to diabetes.
- Iron can cause oxidative stress in the body which can damage cells, protein, and DNA with long term consequences.
- Rather than adopting mandatory iron fortification programmes where unsupervised high iron intakes are instituted across a diverse population, it is imperative to develop individualised strategies and ensure thorough monitoring to detect any adverse events at the earliest.



THE HINDU

Chicory

- The Statista site states that India is the sixth largest producer of coffee in the world, after Brazil, Vietnam, Colombia, Indonesia, Ethiopia, and Honduras. India produced about 4,00,000 tonnes of coffee in 2022--23.
- Coffee contains several vitamins and antioxidants.
- It is, thus, a health drink that protects our stomach cells from oxidative damage, and reduces the risk of type 2 diabetes, and several age-related diseases.
- But one should not overdo it: no more than five cups of coffee a day.
- The South Indian coffee is an admixture of coffee and chicory powders. It is this addition of chicory that makes South Indian coffee special.

What is chicory?

- It is a herb native to Europe and Asia. Its root contains inulin, a starchy substance, which is good for health, and is found in a wide variety of fruits, vegetables, and herbs, including wheat, onions, bananas, leeks, artichokes, and asparagus. Chicory root has a mild laxative effect and decreases swelling.
- Chicory is also a rich source of beta-carotene, which protects cells from

oxidative damage, better than coffee.

- Also, chicory does not contain caffeine which induces restlessness and insomnia, which coffee.



- **THE HINDU**

MICROBES IN MT Everest

- A new study has found that humans are leaving behind a frozen legacy of hardy microbes on Mount Everest, which can withstand harsh conditions and lie dormant in the soil for decades or even centuries.
- The researchers found the presence of certain microbes that have evolved to thrive in warm and wet environments like our noses and mouths which have now become resilient enough to survive in a dormant state in such harsh conditions.
- Most of the microbial DNA sequences found were similar to hardy, or extremophilic organisms previously detected in other high elevation sites in the Andes and Antarctica.

- The most abundant organism they found was a fungus in the genus *Naganishia* that can withstand extreme levels of cold and UV radiation.
- But even pathogens heavily associated with humans, including *Staphylococcus*, one of the most common skin and nose bacteria, and *Streptococcus*, a dominant genus in the human mouth, were found



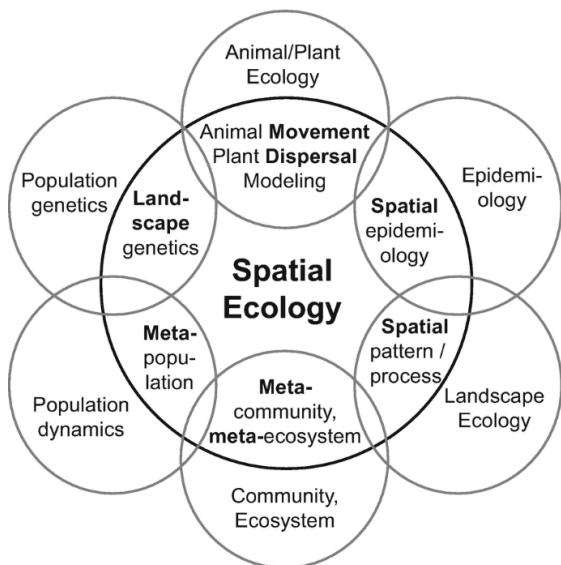
THE HINDU

- Spatial ecology addresses the fundamental effects of space on the dynamics of individual species and on the structure, dynamics, diversity, and stability of multispecies communities.

AFRICAN CHEETAH	ASIATIC CHEETAH
<ul style="list-style-type: none"> SCIENTIFIC NAME: <i>Acinonyx Jubatus</i> DISTRIBUTION: Across Africa from North-west Africa, East Africa, & Southern Africa SIZE: Slightly bigger build with sturdier legs and neck SKIN: Light brown to golden brown fur color, thicker than the Asiatic ones IUCN RED LIST STATUS: Vulnerable 	<ul style="list-style-type: none"> SCIENTIFIC NAME: <i>Acinonyx Jubatus Venaticus</i> DISTRIBUTION: Only 12 Asiatic cheetahs, 9 males, and 3 females are left in Iran SIZE: Slightly smaller and slender than the African cheetah SKIN: Buff to light fawn color bordering pale yellow skin, has more fur underbelly and back of neck IUCN RED LIST STATUS: Critically Endangered

THE HINDU

African vs Asian cheetah



Arctic squirrel and climate change

- As Alaskan permafrost warms, hibernating arctic ground squirrels generate less heat, causing females to emerge from hibernation up to ten days before their male counterparts a mismatch that could have large, cascading ecological impacts.
- The findings (Science) reveal both direct and indirect impacts of a warming world.

- In the Arctic, where warming is occurring more rapidly than in other places on Earth, rising winter temperatures are altering the phenology, or timing, of key seasonal animal behaviors.



- **THE HINDU**

Soil microbiota

- Soil microbiota transplanted from more stressful environmental conditions can enhance tree tolerance to changing climates, a new study (Science) reports.
- Management of soil microbiota, especially during forest restorations, could be a valuable strategy for increasing forest resilience to climate change.
- For trees, neither adaptation nor migration may happen fast enough to keep up the pace of climate change.
- But diverse assemblages of microbes that live on plants can enhance plant tolerance to environmental stress.



THE HINDU

CAG voted in WHO

Girish Chandra murmur, the comptroller and auditor general of India (cag), has been reflected as the external auditor of the world health organization (who) for a four-year term from 2024 to 2027.

The cag is already holding this position in the who since 2019 for a four-year term from 2019 to 2023.

- **THE HINDU**





Decoupling vs derisking

- The U.S. has expressed that it is shifting its policy on China from decoupling to de-risking.
- The EU has already declared that its approach to China will be based on de-risking.

What is 'de-risking'?

- The U.S.-China 'trade war' started, and bilateral relations were set on course for a "decoupling" from the American standpoint.
- This approach was marked by a rare sense of bipartisanship in an otherwise polarised domestic.
- Most recently the label of "decoupling" has been changed to "de-risking".
- According to the U.S. National Security Advisor Jack Sullivan, "de-risking fundamentally means having resilient, effective supply chains and ensuring we cannot be subjected to the coercion of any other country".
- While decoupling stands for an eventual reversal of the four -decade old project to enmesh the two economies, de-risking aims to limit such an effect only in areas where it

undercuts the national security and industrial competence of the U.S

- The U.S.'s geo-economic initiatives like the Partnership for Global Infrastructure and Investment as well as the Indo- Pacific Economic Framework for Prosperity are also supposed to reflect the spirit of de-risking.

Why de-risking?

- The U.S.-China rivalry had peaked in the past few months from the ratcheting of tensions across the Taiwan Strait to the acrimonious spy balloon episode between the two countries.
- China also witnessed Xi Jinping beginning his second decade of rule over China in an unprecedented third term.
- In parallel, a year has passed since Russia began its special military operation in Ukraine, with the conflict going on without any end in sight.
- Mr. Xi, after starting his third consecutive leadership term, made his first foreign visit to Russia where he proposed a peace plan.
- He has also, in his third leadership tenure, extended his "peace-making diplomacy" to West Asia, striking gold in normalizing the frayed Saudi-Iran ties.

- All of these developments have necessitated the U.S. to recalibrate its posture toward China.

What could be the geopolitical ramifications of de-risking?

- The U.S. efforts to keep its allies closer in its geopolitical rivalry against China by adopting the path of de-risking has already won a significant victory in Japan at the G-7 summit.
- The leaders at the summit declared that they will coordinate their “approach to economic resilience and economic security that is based on diversifying and deepening partnerships and de-risking, not de-coupling”.

THE HINDU

Chatgpt and tokenisation

- Inside ChatGPT Behind both seemingly intelligent chatbots and art-making computers, algorithms and data- manipulation techniques turn linguistic and visual data into mathematical objects (like vectors), and combine them in specific ways to produce the desired output.
- This is how ChatGPT is able to respond to your questions.
- When working with a language, a machine first has to break a sentence

or a word down into little bits in a process called tokenization.

- The machine’s data processing model then works with these bits.
 - For example, “there’s a star” can be tokenized to “there”, “is”, “a”, and “star”.
 - There are several tokenisation techniques.
 - A treebank tokenizer breaks up words and sentences based on the rules that linguists use to study them.
 - A sub-word tokenizer allows the model to learn some common words and modifications to that word separately, such as “dusty” and “dustier”/“dustiest”.
 - OpenAI, the maker of ChatGPT and the GPT series of large language models, uses a type of sub word tokenizer called byte pair encoding (BPE).
 - In 2022, Amazon released a parallel database of one million utterances in 52 languages, called MASSIVE.
 - ‘Parallel’ means the same utterance is presented in multiple languages. An utterance can be a simple query or phrase.
 - **THE HINDU**
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Soft power

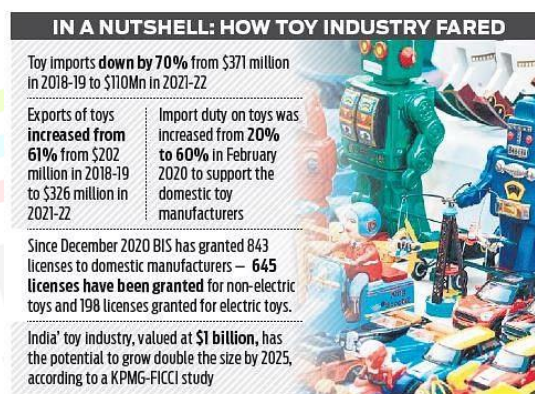
- India convened the Global Buddhist Summit in April primarily to provoke China by promoting Tibetan Buddhism and the Dalai Lama.
- There were no Nepal representatives present.
- The summit was hosted by the International Buddhist Confederation, a Buddhist organization based in India, which has neither a patron nor a member of the Supreme Dhamma Council from Nepal.
- Nobody from Bhutan, a Buddhist nation, was present either. Therefore, the geopolitical tool for India seems to be the promotion of Tibetan Buddhism, which has greater Western appeal.
- The India International Centre for Buddhist Culture and Heritage is coming up in Lumbini, Nepal
- Beijing pursues a multifaceted and flexible approach to promoting Chinese Buddhism abroad, with its specific modalities varying depending on whether the target country is Buddhist-majority, Western, or one of China's Asian competitors
- China utilized Buddhist narratives alongside infrastructure investments in Sri Lanka, just as Cambodia, Laos,

and other Buddhist countries in Southeast Asia do.

- In Nepal, a popular rumors is that China will send five million Buddhist pilgrims and establish hotels and other businesses through its investment arms as a big soft power push.
- It is also rumoured that India will invest more money in Lumbini.

THE HINDU

Toy Industry



- India has recently turned a net exporter of toys, during 2020-21 and 2021-22, ending decades of import dominance.
- Between 2018-19 and 2021-22, toy exports increased from \$109 million (₹812 crores to \$177 million (₹1,237 crore); imports declined from \$371 million (₹2,593 crore) to \$110 million (₹819 crore), official data show.
- They can be cross verified by mirror images of trade figures from corresponding importing or exporting countries.

- The achievement is widely credited to the 'Make in India' initiative launched in 2014, and related policies, official press releases claim.



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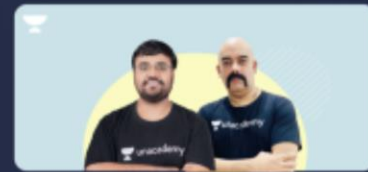
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