

GES REPORTER

December 2022
Monthly Current Affairs
Compilation PDF

By

Saurabh Pandey

Code: SPLIVE

[Download for Free](#)

About Me



- SAURABH PANDEY

FOUNDER gesreporter.com

- QUALIFIED Exams like NET, JRF
- MA in public administration
- B.tech in biotechnology
- UPSC INTERVIEW PLUS 3 IAS MAINS





Plus courses



HINGLISH

Complete Course on Daily Current Affairs for UPSC CSE - GS Exam: October, 2022

Discussion Forum

Share

In this course, Saurabh Pandey will cover daily current affairs of October 2022. The course consists of 21 sessions with a duration of 120 minutes each. This course will be completed in approx. 1 month. Learners... [Read more](#)



Starts on Oct 1
Oct 1 - Oct 31, 2022



22 lessons



0 practices
0 questions by educators

Support

Statistics



UPSC CSE Batches

Ace GS and CSAT for UPSC CSE 2023/2024 preparation

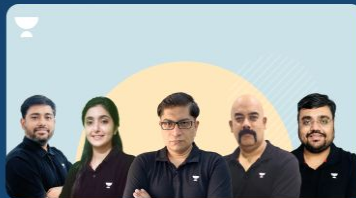
Comprehensive Prelims + Mains Integrated Batch Courses

By India's Top Educators

Starting on **October 13**

[Enroll Now](#)

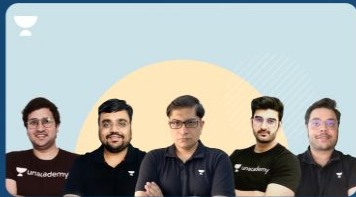
For more details, contact: **8585858585**



Ultimate Batch for UPSC CSE 2023
(Bilingual) - **October 13**



लक्ष्य UPSC CSE 2023: GS की पूर्ण
तैयारी - **October 13**



Mission Two Year Batch Course of GS for
UPSC CSE 2024 (Bilingual) - **October 13**



लक्ष्य UPSC CSE 2024: GS की पूर्ण
तैयारी (Hindi) - **October 13**

Unacademy Subscription



Plus



Iconic

Use Code

'SPLIVE'

to get 10% off!

UPSC CSE - GS subscription

ICONIC ⁺ PLUS LITE

- ✓ Access to curated test series
- ✓ Daily practice questions
- ✓ India's best educators
- ✓ Interactive live classes
- ✗ 1:1 Live Mentorship
- ✗ Mains Q&A practice

36 months	₹2,996/mo	>
No cost EMI	₹1,07,864	
24 months	₹3,244/mo	>
No cost EMI	₹77,852	
18 months	₹3,768/mo	>
No cost EMI	₹67,825	
12 months	₹4,849/mo	>
No cost EMI	₹58,189	

To be paid as a one-time payment

[View all plans](#)

UPSC CSE - GS subscription

ICONIC ⁺ PLUS LITE

- ✓ Access to curated test series
- ✓ Daily practice questions
- ✓ India's best educators
- ✓ Interactive live classes
- ✗ 1:1 Live Mentorship
- ✗ Mains Q&A practice

36 months	₹2,697/mo	>
No cost EMI	+10% OFF ₹97,078	
24 months	₹2,919/mo	>
No cost EMI	+10% OFF ₹70,067	
18 months	₹3,391/mo	>
No cost EMI	+10% OFF ₹61,043	
12 months	₹4,364/mo	>
No cost EMI	+10% OFF ₹52,370	

To be paid as a one-time payment

[View all plans](#)

UPSC CSE - GS subscription

ICONIC ⁺ PLUS LITE

- ✓ Access to curated test series
- ✓ Daily practice questions
- ✓ India's best educators
- ✓ Interactive live classes
- ✓ 1:1 Live Mentorship
- ✓ Mains Q&A practice

36 months	₹4,741/mo	>
No cost EMI	₹1,70,669	
24 months	₹4,984/mo	>
No cost EMI	₹1,19,606	
18 months	₹5,274/mo	>
No cost EMI	₹94,926	
12 months	₹6,643/mo	>
No cost EMI	₹79,715	

To be paid as a one-time payment

UPSC CSE - GS subscription

ICONIC ⁺ PLUS LITE

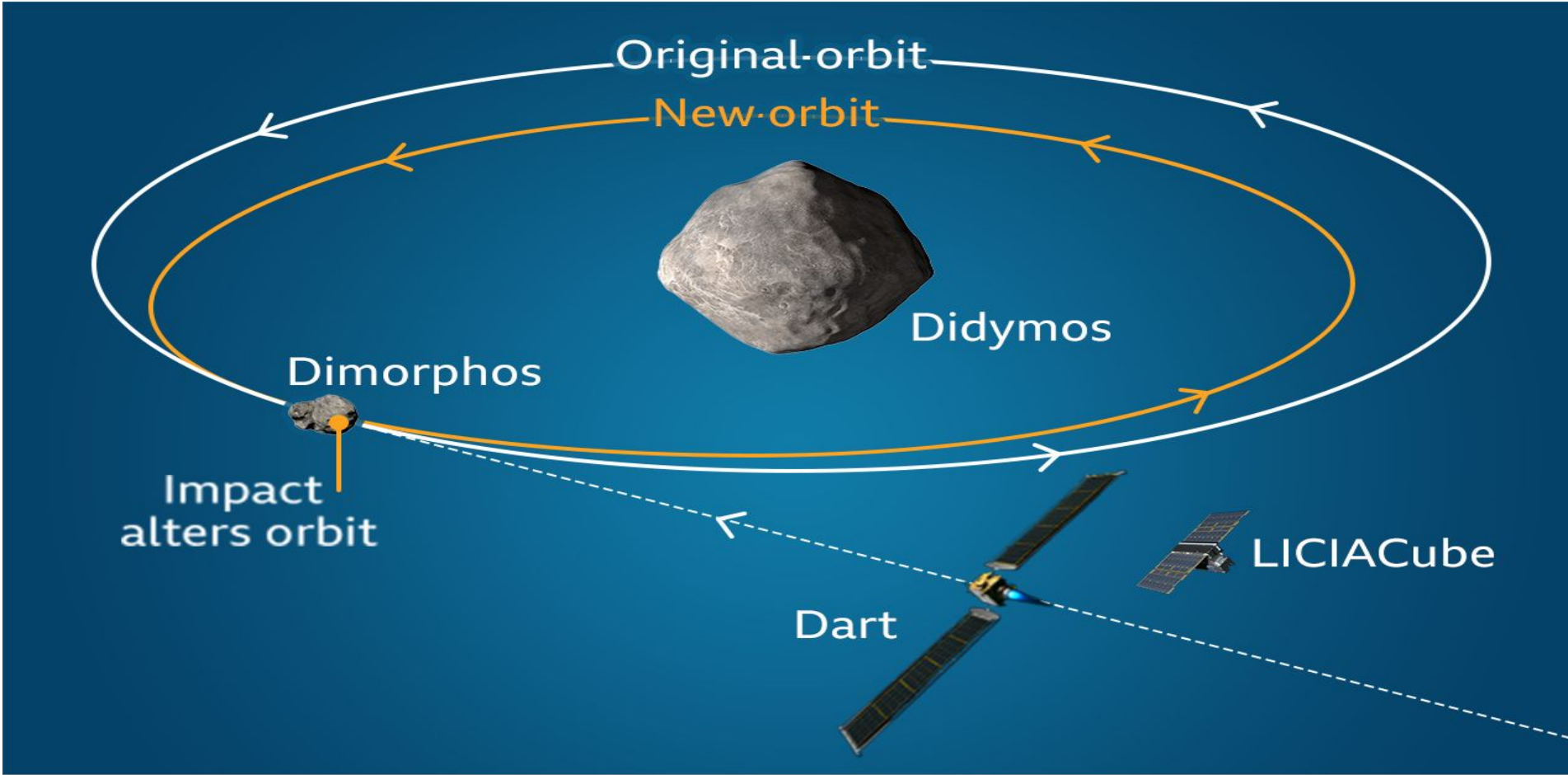
- ✓ Access to curated test series
- ✓ Daily practice questions
- ✓ India's best educators
- ✓ Interactive live classes
- ✓ 1:1 Live Mentorship
- ✓ Mains Q&A practice

36 months	₹4,267/mo	>
No cost EMI	+10% OFF ₹1,53,602	
24 months	₹4,485/mo	>
No cost EMI	+10% OFF ₹1,07,645	
18 months	₹4,746/mo	>
No cost EMI	+10% OFF ₹85,433	
12 months	₹5,979/mo	>
No cost EMI	+10% OFF ₹71,744	

To be paid as a one-time payment

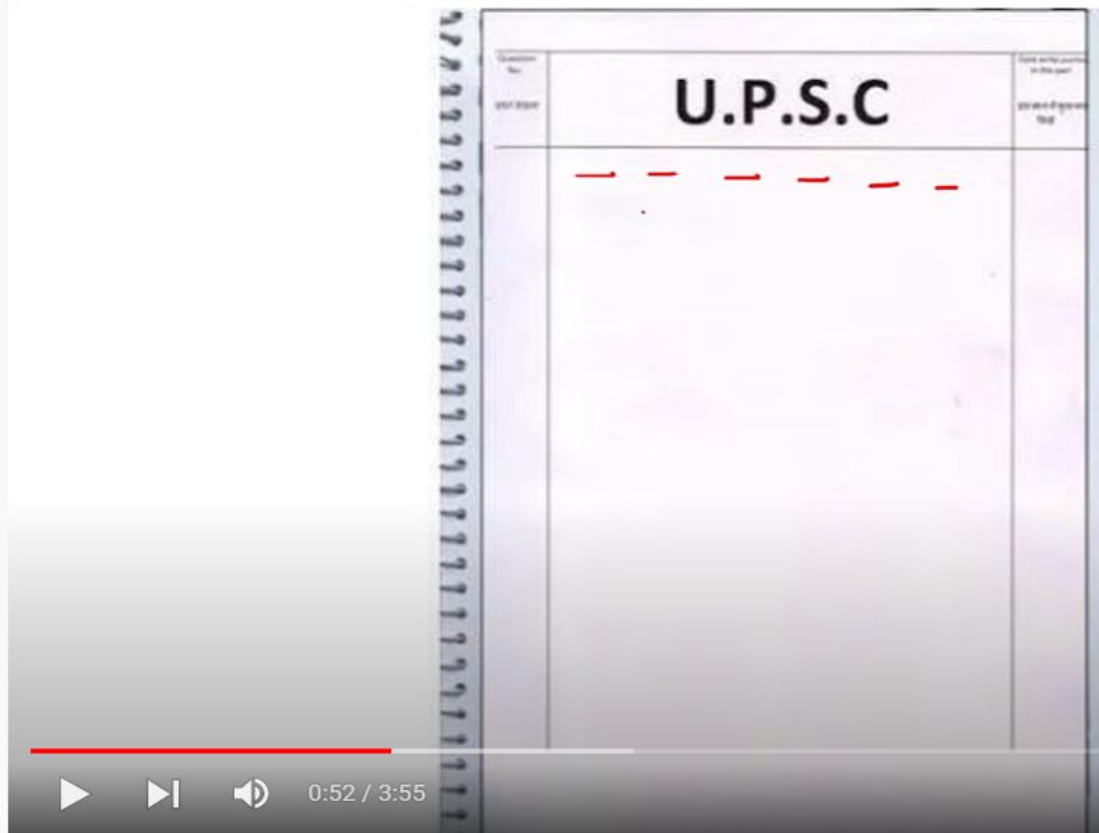


Nasa spacecraft crashes into asteroid's moon



Source: Nasa, Johns Hopkins Applied Physics Laboratory





[#answerwritingmains](#) [#upscsse](#)

TARGET MAINS 2023 II Daily Answer writing practice II The Hindu in Hindi series



Unacademy Optional Subscription

Original Price

Price after 10% off

<input checked="" type="checkbox"/> 36 months SAVE 65%	₹1,666 /mo Total ₹59,988
<input type="checkbox"/> 24 months SAVE 62%	₹1,833 /mo Total ₹43,989
<input type="checkbox"/> 18 months SAVE 58%	₹2,025 /mo Total ₹36,450
<input type="checkbox"/> 12 months SAVE 47%	₹2,520 /mo Total ₹30,239

<input checked="" type="checkbox"/> 36 months SAVE 65%	₹1,500 /mo ₹59,988 ₹53,989
<input type="checkbox"/> 24 months SAVE 62%	₹1,650 /mo ₹43,989 ₹39,590
<input type="checkbox"/> 18 months SAVE 58%	₹1,823 /mo ₹36,450 ₹32,805
<input type="checkbox"/> 12 months SAVE 47%	₹2,268 /mo ₹30,239 ₹27,215

Use Code

'SPLIVE'

to get 10% off!

• NOW LIVE •

COMPETE

Battle and know
where you stand

Win a laptop and prizes up to ₹2 Lakhs*

*Terms and Conditions apply

State government vs Governor

- The Kerala Cabinet approved the draft Bill removing Governor Arif Mohammed Khan as Chancellor of the State universities after recurrent and politically charged ruins with Raj Bhavan over matters relating to the administration of centers of higher learning.
- Instead, the Bill proposes supplanting the Governor with eminent academicians as Chancellors of various universities.
- The Bill, if passed, will, at a stroke, negate the Governor's watchdog role in university administration and accord the government more leeway in appointing Chancellors of its choice.

THE HINDU

SC on Jallikattu

- The Supreme Court said the sport of Jallikattu as such now might not be brutal but the "form" in which it was being held in Tamil Nadu might be cruel.
- A Constitution Bench led by Justice K.M. Joseph said the Prevention of Cruelty to Animals (Tamil Nadu Amendment) Act of 2017 and

Prevention of Cruelty to Animals (Conduct of Jallikattu) Rules of 2017 had laid down procedures to protect the bulls from brutality.

- Violation of these rules would attract penal action.

THE HINDU

Eg Human-animal conflict

- An eight -member team from Chinnakkal that comes under the Munnar forest division, which has been instrumental in bringing down the incidents of man- animal conflict in the region, has won recognition for its efforts.
- Taking note of its contributions in mitigating man-animal conflicts as well as in ensuring the protection of wild elephants over the past eight months, the Wildlife Trust of India has selected the team for its award this year.

THE HINDU

Election commission reform

- Whether Election Commissioners should be selected by the executive or by a collegium. The idea of a collegium is not new.
- The Dinesh Goswami Committee in 1990 suggested that the Chief Election Commissioner be appointed

by the President (read: executive) in consultation with the Chief Justice of India and the Leader of the Opposition (and in case the Leader of the Opposition was not available, then consultation be held with the leader the largest opposition group in the Lok Sabha).

- It said this process should have statutory backing.
- The National Commission to Review the Working of the Constitution, under Justice M.N. Venkatachaliah, said that the Chief Election Commissioner and other Election Commissioners should be appointed on the recommendation of a body comprising the Prime Minister, the Leaders of the Opposition in the Lok Sabha and the Rajya Sabha, the Speaker of the Lok Sabha and the Deputy Chairman of the Rajya Sabha.
- The 255th Report of the Law Commission, chaired by Justice A.P. Shah, said the appointment of all the Election Commissioners should be made by the President in consultation with a three-member collegium consisting of the Prime Minister, the Leader of the Opposition of the Lok Sabha (or the leader of the largest opposition party in the Lok Sabha), and the Chief Justice of India.

- It also suggested measures to safeguard Election Commissioners from arbitrary removal, in a manner similar to what is accorded to the Chief Election Commissioner, who can only be removed by impeachment, which is by no means easy. Recommending that the Election Commissioners be offered the same protection from arbitrary removal as enjoyed by the Chief from the day of the appointment.
- Without this, they may hesitate to act independently, which they otherwise might if they were truly secure.
- In the absence of full constitutional security, an Election Commissioner could feel they must keep on the right side of the Chief Election Commissioner.

THE HINDU

Assam -Meghalaya dispute

How did the boundary dispute start?

- Meghalaya was carved out of Assam as an autonomous State in 1970 and became a full-fledged State in 1972.
- The creation of the new State was based on the Assam Reorganisation (Meghalaya) Act of 1969, which the Meghalaya government refused to accept.

- This was because the Act followed the recommendations of a 1951 committee to define the boundary of Meghalaya.
- On that panel's recommendations, areas of the present -day East Jaintia Hills, Ri-Bhoi and West Khasi Hills districts of Meghalaya were transferred to the Karbi Anglong, Kamrup (metro), and Kamrup districts of Assam.
- Meghalaya contested these transfers after statehood, claiming that they belonged to its tribal chieftains.
- Assam said the Meghalaya government could neither provide documents nor archival materials to prove its claim over these areas.
- After claims and counter-claims, the dispute was narrowed down to 12 sectors on the basis of an official claim by Meghalaya in 201.

THE HINDU

Ransomware attack in AIIMS

- On November 23, e-services at the All- India Institute of Medical Sciences (AIIMS) were crippled by what is suspected to be a ransomware attack.

What is ransomware?

- Ransomware is a type of malicious software, used by cybercriminals, to infect a computer system by blocking access to the stored data by encrypting the files.
- A ransom is then demanded from the owner in exchange for the decryption key.

Which agencies in India deal with cyber-attacks?

- Set up in 2004, the Indian Computer Emergency Response Team (CERT-In) is the national nodal agency that collects, analyses, and circulates inputs on cyber-attacks; issues guidelines, and advisories for preventive measures, forecasts and issues alerts; and takes measures to handle any significant cyber security event.
- It also imparts training to computer system managers.
- The National Cyber Security Coordinator, under the National Security Council Secretariat, coordinates with different agencies at the national level on cybersecurity issues, while the National Critical Information Infrastructure Protection Centre has been set up for the protection of nationally critical information infrastructure.

- According to the government, the Cyber Swachhta Kendra (Botnet Cleaning and Malware Analysis Centre) has been launched for the detection of malicious software programs and to provide free tools to remove the same, while the National Cyber Coordination Centre works on creating awareness about existing and potential threats.

THE HINDU

Women and GM Crops

- The Supreme Court expressed concern about the plight of thousands of women agricultural laborers in rural areas traditionally engaged in de-weeding as they would be part of the human cost if the government permitted the commercial cultivation of herbicide-tolerant crops such as GM mustard.
- “In rural areas, women are experts in removing weeds.
- They are a part of the labor force in agriculture in India.
- It brings them employment... You know it is because women started agriculture that humankind stopped being nomads and we saw the sprouting of civilizations.
- Widespread use of herbicide-tolerant crops would encourage farmers to spray chemical weed

killers, leaving toxic chemical residue in large amounts on the crops.

- The Supreme Court’s own Technical Expert Committee [TEC] had said that these GM crops were not meant for agriculture in the Indian context.
- They may be suitable in the western context where there are large farms, but not here.

THE HINDU

Growing cooling sector in India

- From 2030, 160 million to 200 million people can be exposed to lethal heatwaves in India every year, and nearly 34 million Indians will face job losses due to heat stress-related productivity decline.
- By 2037, the demand for cooling is likely to be eight times more than the current level, the World Bank has said in a report.
- In this scenario, it is imperative for India to deploy alternative and innovative energy-efficient technologies for keeping spaces cool.
- According to the report, “Climate investment opportunities in India’s cooling sector”, this could open an investment opportunity of \$1.6 trillion by 2040, besides reducing greenhouse gas emissions

significantly and creating 3.7 million jobs

- With the demand for cooling shooting up, there will be a demand for a new air-conditioner every 15 seconds, the report said, leading to an expected rise of 435% in annual greenhouse gas emissions over the next two decades
- Thus, there is a need to shift to a more energy-efficient pathway which could lead to a reduction in expected CO2 levels.
- The report proposes a road map to support New Delhi's India Cooling Action Plan (ICAP), 2019, through new investments in three major sectors: building construction, cold chains, and refrigerants.
- Adopting climate-responsive cooling techniques as a norm in both private and government-funded constructions can ensure that those at the bottom of the economic ladder are not disproportionately affected by rising temperatures.
- The report suggests that India's affordable housing program for the poor, the Pradhan Mantri Awas Yojana (PMAY), can adopt such changes on a scale.
- It proposed enacting a policy for "district cooling", which could lead to the consumption of 20- 30% less

power than the most efficient conventional cooling solutions.

- District cooling technologies generate chilled water in a central plant which is then distributed to buildings via underground insulated pipes.
- This brings down the cost of providing cooling to individual buildings.
- Apart from this, guidelines for the implementation of local and city-wide urban cooling measures such as cool-roofs should also be considered.

THE HINDU

Fortification and malnutrition

- According to an FAO Food Security Report for 2021, India ranks 101 out of 116 countries in the Global Hunger Index 2021, with a 15.3% undernourished population, the highest proportion of stunted children (30%), and wasted children (17.3%).
- The picture the Global Nutrition Report 2021 paints is cause for concern, noting that stunting among children in India is significantly higher than the Asian average of 21.8%

- Pilot projects on the distribution of fortified rice have been taken up in select States
- Experiences from the different States on the fortified rice project, so far tally with the results of global programs that use fortified food as a cost-effective strategy.
- The health benefits accruing from food fortification have made 80 countries frame laws for the fortification of cereal flour, and 130 countries with iodized salt, where 13 countries have mandated rice fortification
- Noon meal scheme in Gujarat In Gujarat, an eight-month long study on multiple micronutrients fortified rice intervention for schoolchildren (six-12 years) in 2018-2019, as part of the Midday Meal Scheme
- Despite the program's proven efficacy, activists have expressed concern that excess iron overload from fortified rice has been dangerous for Jharkhand's tribal population suffering from sickle cell anaemia and thalassemia.
- Food fortification, according to stalwarts of nutrition, is a cost-effective complementary strategy to address multiple micronutrient deficiencies.

THE HINDU

Why global layoff?

Why are layoffs becoming common?

- Alphabet CEO Sundar Pichai had warned of a coming winter in the tech sector earlier this year.
- In an all-hands meeting in September this year, one of his responses to staff queries on budget cuts was: "We don't get to choose the macroeconomic conditions always."
- A potential economic recession is a big red flag.
- With inflation soaring in most parts of the world, central banks have been scrambling since March this year to rein it in by increasing rates so as to make it more costly to borrow and consume.
- This will eventually affect economic growth and jobs. The International Monetary Fund (IMF) has cited forecasts for global GDP growth in both 2022 and 2023 as gloomy, given the pandemic and ongoing Russia-Ukraine war.
- Setting aside the 2008 crisis numbers, estimates for this calendar and the next by the IMF are the weakest since 2001.

What are personality rights?

- The Delhi High Court recently passed an interim order to prevent the unlawful use of Bollywood star Amitabh Bachchan's name, image, and voice.

What are personality rights?

- Personality rights refer to the right of a person to protect his/her personality under the right to privacy or property.
- These rights are important to celebrities as their names, photographs or even voices can easily be misused in various advertisements by different companies to boost their sales.
- Therefore, it is necessary for renowned personalities/celebrities to register their names to save their personality rights.
- A large list of unique personal attributes contributes to the making of a celebrity.
- All of these attributes need to be protected, such as name, nickname, stage name, picture, likeness, image and any identifiable personal property, such as a distinctive race car.

Are personality rights different from publicity rights?

- Personality rights are different from publicity rights. Personality rights consist of two types of rights firstly, the right of publicity, or the right to keep one's image and likeness from being commercially exploited without permission or contractual compensation, which is similar (but not identical) to the use of a trademark; and secondly, the right to privacy or the right to not have one's personality represented publicly without permission.
- However, under common law jurisdictions, publicity rights fall into the realm of the 'tort of passing off'.
- Passing off takes place when someone intentionally or unintentionally passes off their goods or services as those belonging to another party.

- Often, this type of misrepresentation damages the goodwill of a person or business, resulting in financial or reputational damage.
- Publicity rights are governed by statutes like the Trademarks Act 1999 and the Copyright Act 1957.
- Does the use of a name on the internet affect personality rights?
- The Delhi High Court in 2011 made an observation in the case of Arun Jaitley vs Network Solutions Private Limited and Ors.
- The Court stated that “the popularity or fame of individual will be no different on the internet than in reality.”
- The Court decided in the favour of Mr. Arun Jaitley, stating that the “name also falls in the category wherein it besides being a personal name has attained distinctive indicia of its own.
- Therefore, the said name due to its peculiar nature/distinctive character coupled with the gained popularity in several fields whether in politics or in advocacy.

What about consumer rights?

- While celebrities are protected from commercial misuse of their name and personality, there have also been instances where consumers are misled owing to false advertisements or endorsements by such personalities.
- Due to such cases, the Ministry of Consumer Affairs has made a notification in 2022 to keep a check on misleading adverts and endorsements of consumer products by imposing a penalty on the endorser.

What are personality rights?

- The Delhi High Court recently passed an interim order to prevent the unlawful use of Bollywood star Amitabh Bachchan’s name, image, and voice.

What are personality rights?

- Personality rights refer to the right of a person to protect his/her personality under the right to privacy or property.
- These rights are important to celebrities as their names, photographs or even voices can easily be misused in various advertisements by different companies to boost their sales.
- Therefore, it is necessary for renowned personalities/celebrities to register their names to save their personality rights.
- A large list of unique personal attributes contribute to the making of a celebrity.
- All of these attributes need to be protected, such as name, nickname, stage name, picture, likeness, image and any identifiable personal property, such as a distinctive race ca

Are personality rights different from publicity rights?

- Personality rights are different from publicity rights. Personality rights consist of two types of rights firstly, the right of publicity, or the right to keep one’s image and likeness from being commercially exploited without permission or contractual compensation, which is similar (but not identical) to the use of a trademark; and secondly, the right to privacy or the right to not have one’s personality represented publicly without permission.

- However, under common law jurisdictions, publicity rights fall into the realm of the 'tort of passing off'.
- Passing off takes place when someone intentionally or unintentionally passes off their goods or services as those belonging to another party.
- Often, this type of misrepresentation damages the goodwill of a person or business, resulting in financial or reputational damage.
- Publicity rights are governed by statutes like the Trademarks Act 1999 and the Copyright Act 1957.
- Does the use of a name on the internet affect personality rights?
- The Delhi High Court in 2011 made an observation in the case of Arun Jaitley vs Network Solutions Private Limited and Ors.
- The Court stated that "the popularity or fame of individual will be no different on the internet than in reality."
- The Court decided in the favour of Mr. Arun Jaitley, stating that the "name also falls in the category wherein it besides being a personal name has attained distinctive indicia of its own.
- Therefore, the said name due to its peculiar nature/distinctive character coupled with the gained popularity in several fields whether in politics or in advocacy.

What about consumer rights?

- While celebrities are protected from commercial misuse of their name and personality, there have also been instances where consumers are misled owing to false advertisements or endorsements by such personalities.

- Due to such cases, the Ministry of Consumer Affairs has made a notification in 2022 to keep a check on misleading adverts and endorsements of consumer products by imposing a penalty on the endorser.

THE HINDU

Digi Yatra

- Passengers traveling from Delhi, Varanasi, and Bengaluru will be able to use their face as a boarding pass from December 1 to enter these airports, access the security check area, and pass the boarding gate.
- Travellers will have to mandatorily provide their Aadhaar details to avail themselves of this service.

What is Digi Yatra?

- Based on Facial Recognition Technology (FRT), Digi Yatra aims to achieve seamless and contactless processing of passengers at airports. With this, passenger data will be processed automatically at based on a facial recognition system, at various checkpoints at the airport.

THE HINDU

Windfall tax

- The government slashed to less than half the windfall- profit tax on domestically produced crude oil and also reduced the levy on diesel.

What is windfall tax?

- A windfall tax is a tax imposed on a company's profits that have experienced an unexpected and dramatic increase in its income.

- For example, it is imposed when incredible revenue increases, such as from an oil discovery or a stock market boom.

THE HINDU

Shipping industry

- India plans to offer cash subsidies, lower taxes, and other incentives to bolster its shipbuilding industry, as part of an effort to reduce the pain of high freight rates for the nation's manufacturers.
- The plans include subsidies so that at least 50 new vessels can be built, as well as granting 'infrastructure status to the industry which would help with financing from banks, said the government official local tax rules deter investment in the shipping industry, compared with the tax regimes of Singapore, Malta, Cyprus and Panama, where most of the of global carriers were registered.
- The cost of ship making was up to 20% lower in India compared with Indonesia and the Philippines, the panel said.
- India could save at least \$25 billion a year in foreign exchange if government incentives helped private firms to develop the local shipping industry.

THE HINDU

TRAFFIC and turtle protection

- India has 29 species of freshwater turtles (24) and tortoises (5).
- The main difference between the two is that turtles are primarily aquatic whereas tortoises are terrestrial and spend more time on land.
- More than half of the turtle species are threatened and 11 are protected under

Schedule I of The Wildlife Protection Act, enjoying the same protection as tigers.

- For the red -crowned roofed turtle, round only within the National Chambal Gharial Wildlife Sanctuary (NCGWS) spread across Rajasthan, Madhya Pradesh, and Uttar Pradesh, threats have been mounting over the past few decades.
- The species recently made it to the list of the 25 most threatened freshwater turtles in the world, along with northern river terrapin (Batagur Baska) which is left only in the Sundarbans.
- Turtles are smuggled primarily for three reasons for their meat (mainly within the country), as pets (within and outside India) and to extract their calipee.
- "There is demand for the calipee, to meet which a supply system is already in place.
- Right now, efforts by forest departments and the WCCB (Wildlife Crime Control Bureau) are keeping the illegal trade in check,"
- The WCCB, a statutory body with the mandate to prevent wildlife trafficking in the country, has carried out a pan- India crackdown on turtle smuggling.
- Two more such initiatives 'Operation Turtshield-I' (December 2019 to January 2020) and 'Operation Turtshield-II' (December 2020 to February 2021) were taken up to tackle the illegal trade of live turtles.

About TRAFFIC

- TRAFFIC is an organization that was established in 1976 by WWF and IUCN as a wildlife trade monitoring network to undertake data collection, analysis, and provision of recommendations to inform decision-making on wildlife trade.

- For over 40 years TRAFFIC performed that function as a leader in wildlife trade research, as a joint program of WWF and IUCN.
- TRAFFIC became an independent non-profit organization in 2017, with WWF and IUCN sitting on its Board of Directors along with independent Board members.
- TRAFFIC is renowned globally for its expertise and influence in the wildlife trade and conservation arena, as a provider of objective and reliable information.
- Initiatives included guarding natural hard structures such as trees using crash barriers to prevent direct collisions, and installing retro-reflective signage on the trees to make them more visible to commuters.
- Missing or inadequate signages are another leading cause of road crashes.
- Their absence results in road users being unaware of a stretch's unique features in a timely manner, which could lead to crashes.

THE HINDU

Road safety and environment

- In 2021, India reported 4,03,116 crashes, each of which adversely impacted the environment in various ways and to different degrees.
- Most vehicles contain toxic metals such as lead, mercury, cadmium, or hexavalent chromium, which are detrimental to the environment.
- Fuel and fluid leaks are seen at crash sites.
- Severe road crashes lead to automobile wreckage, which becomes a part of unusable end-of-life vehicles.
- This gives rise to scrappage.
- India is estimated to have about 22.5 million end-of-life vehicles by 2025.
- Despite being one of the largest car and light commercial vehicle markets in the world, India's National Automobile Scrappage Policy, launched in 2021, is still in its nascent stages several governments globally have reduced speed limits to prevent crashes and lower air pollution.
- Vegetation on or very close to the road stretches often falls prey to road widening initiatives.
- It is a common standard practice to use asbestos for creating these signages. As asbestos has an adverse impact on the environment.
- Despite being more expensive than asbestos, one of the most sustainable and recyclable materials, Aluminium Composite Panels, are employed for signages.

THE HINDU

Flue gas desulphurization (FDG)

- Not a single coal -based thermal power plant in West Bengal has installed flue gas desulphurization (FDG), a technology to eliminate sulfur compounds from exhaust emissions.
- The country's first emission norms for control of sulfur dioxide, nitrogen oxide, and mercury from coal- fired power plants were notified in December 2015.
- Flue-gas desulfurization (FGD) material is a product of a process typically used for reducing SO₂ emissions from the exhaust gas system of a coal-fired boiler.

THE HINDU

How are red sand dunes created?



- Red sand dune ecosystems with different landforms and features and sporadic and scanty vegetation are located along the coastline in Visakhapatnam Region.
- In this ecosystem, 36 plant species consisting of herbs,

climbers/creepers, shrubs, trees, and grasses were recorded.

- The species such as Indigofera sp., Tephrosia species, Atylosia scarabaeoides, Ipomoea repens, Merremia tridentata, Aristida funiculata and Spinifex littoreus have been found to be very effective sand-fixers; they stabilize and strengthen dune landforms and control the erosion of dune sand.
- Aged trees with their well-built root network pose a great threat to dune stability.
- Human activities involving digging for sand, playing and climbing the dune structures, small vendors vending edible items to people visiting the site, and littering have been found to be destabilizing and degrading the stability of dunes making them very prone to erosion by wind and rainwater.
- With these activities, this natural heritage site has lost its scenic ecological beauty and glory.

How are RED SAND DUNES CREATED?

- When the dry monsoon wind blows with high velocity, the red loam is churned and driven east in huge columns of red sand, till they are met by sea breeze near the coastal tract

- Fine materials with light weight are picked up, suspended in the air, and carried away.
- While heavy or large grains are rolled along the ground, grains of intermediate size and weight are carried out at one time and rolled to another.
- Severe gusts of wind are capable of picking up and carrying materials for short distances and larger materials can be consistently held in the air.
- Thus, some grains are carried and dropped innumerable times in the course of the history
- These processes of erosion, transport, and deposit of sediments that are caused by wind at or near the surface of the earth, are called Aeolian processes. They lead to continual sand redistribution.
- The formation of a sand dune is a most characteristic and conspicuous process.
- When the high-velocity wind blowing sand above the ground meets any obstruction like a fence post, bush, shrub, or any other vegetation, the force of the wind is checked and the sand is deposited on the leeward side of the obstruction.

North East and Indo Pacific region

- The Northeast which comprises seven 'sisters' or States and one 'brother', Sikkim, has been witnessing transformation as it heads towards better security conditions and development
- The pernicious phenomena of smuggling, drug trafficking, transnational border crime, insurgent activity, and the influx of refugees (from Myanmar) represented serious non-- traditional threats.
- China was viewed as a 'constant player' behind these nefarious activities.
- This has necessitated vigilance and strict action by the Assam Rifles and other security agencies.
- Manipur needs to be promoted as the hub of medical tourism for other Indian States and neighbors such as Myanmar.
- The State's research and development facilities to leverage the region's biodiversity should be expanded.
- Accelerated development requires increased investment by Indian corporates and foreign investors as well as better management.
- The region's 'unity in diversity through music, dance, drama, and cuisine.

- Clearly, expanding the reach of cultural diplomacy and people-to-people cooperation through greater educational exchanges, tourism, and trade is desirable.
- Moving beyond geopolitics and geo-economics, neighbours should focus on “the geo-cultural dimension” of the Indo-Pacific.
- Diplomats from the region agree on the importance of expanded people-related cooperation which would lead to wider acceptance of the Indo-Pacific and consolidation of the Quad.
- First, the growing significance of the Bay of Bengal region permeates the thinking of scholars.
- The concept of the Indo-Pacific seems distant, but the moment it is perceived as the outer circle of the Bay of Bengal and its littorals, it comes closer to home.
- Therefore, member -states need to invest more in the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) to enhance its effectiveness.
- Second, in implementing India’s Indo-Pacific strategy, voices from Northeast and eastern India must be heard.

THE HINDU

India and G20

- Symbolism and logistical coordination aside, the Government has a tough task ahead in conducting substantive negotiations to bring together a comprehensive G-20 agenda, where officials said they would focus on counter-terrorism, supply chain disruptions, and global unity.
- In 2008, the first G-20 summit-level meeting in the U.S. was during a moment of crisis for the world’s financial systems.
- In 2022, the task for Mr. Modi and his team is equally crucial, given the lasting effects of the Russian war in Ukraine, western sanctions on energy that will deepen this month, economic downturns, pandemic worries, and climate change issues that are testing the foundations of globalization and an interconnected global economy.
- In his editorial, Mr. Modi said India would forge its G-20 agenda through its tradition of “collective decision-making” that, like India’s national consensus, would be made “... by blending millions of free voices into one harmonious melody”.
- At a time India itself faces economic distress and social and communal tensions, the Government should be

prepared for more scrutiny on
upholding such ideals.

THE HINDU

GES
REPORTER

DASH DIET

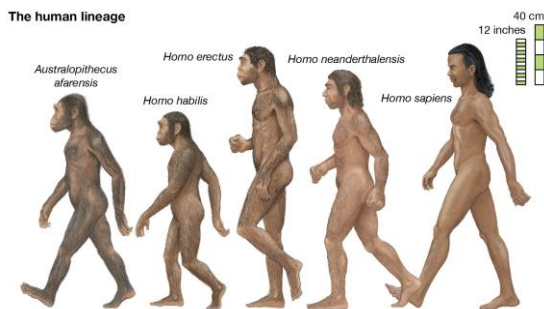
- DASH diet (Dietary Approaches to Stop Hypertension). DASH is best-recommended diet to prevent cardiovascular events.
- DASH diet involves eating fruits, vegetables, lean meat, poultry, nuts, and whole grains, and reducing the intake of saturated fats, cholesterol, and sugar.

Does the WHO recommend only 5 gm of salt per day?

THE HINDU

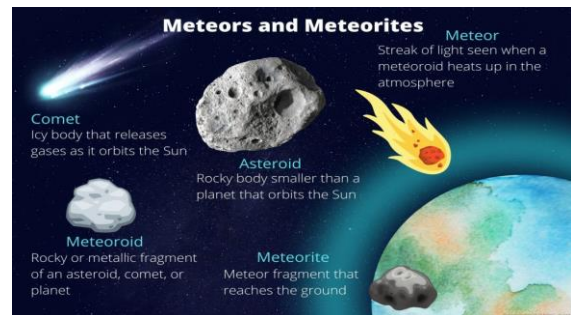
Human evolution

- A rare, well- preserved ancient human skull found in central China could be a million- year- old Homo erectus.
- As excavation of the fossil continues, archaeologists and palaeo anthropologists anticipate that the skull could give a fuller and a detailed picture of the diverse family tree of archaic humans living throughout Eurasia in prehistoric times.



Meteorites

- Researchers have identified two, possibly even three, new minerals in a huge iron- based meteorite that landed in Somalia.
- The minerals have been named elaliite, after the meteorite's location near the town of El Ali.



THE HINDU

Mega Constellation

- Mega-constellations are systems utilizing hundreds to tens of thousands of satellites in Low Earth Orbit (LEO) to deliver low-latency broadband data services anywhere on the plane
- Satellite 'mega constellations' such as SpaceX's Starlink Internet network, which already consists of thousands of satellites might soon face some regulation in the United States.

- A U.S. government report suggests that regulators should revisit a 1986 decision that effectively exempts communications satellites from the U.S. National Environmental Policy Act.
- Mega Constellations can disrupt the radio frequencies used for astronomical observation and intensify congestion in orbit.



THE HINDU

Nanofibrous sheet and blood shelf life

- Blood bag technology enhances the quality and shelf life of stored blood.
- Despite inadequate blood donation, millions of blood units are discarded due to a decline in quality during storage. Stored blood has a finite shelf life.
- Typically, stored cells produce various extracellular components known as damage-associated molecular patterns (DAMPs), which damage the blood cells during storage.
- Typical extracellular components being generated are free- iron and free- hemoglobin, bioactive lipids such as polyunsaturated fatty acids, extracellular DNA, nucleosomes, and proteins.
- During the storage, these components interact and damage red blood cells (RBCs).
- Capturing these DAMPs components without causing damage to the stored blood cells is highly challenging.
- Therefore, we have custom-designed Nanofibrous sheets that can capture such damage-causing components and protect RBCs.
- Nanofibrous sheets made with cationic and anionic polymers will help scavenge damage-causing agents through ionic interactions.
- These Nanofibrous sheets can be made into blood bags.
- DAMPs are produced when cells get destroyed and the DAMP components, in turn, damage the membrane of RBCs and reduce the membrane integrity.
- Intermittent capturing of DAMPs on day 21 or 28 after collection using the novel blood bags helped protect RBCs from losing their membrane integrity and enhanced the transfusion efficiency
- A blood transfusion is a routine medical procedure in which donated blood is provided to you through a narrow tube placed within a vein in your arm.

Rhino population

What is the rhino population?

- The population of the one-horned rhino was about a dozen when Kaziranga became a protected area in 1905.
- According to the State of Rhino Report 2022, the number of poor-sighted herbivore's number in Kaziranga is an estimated 2,613, more than 65% of its total population of 4,014 across 11 habitats in India and Nepal.

How have anti-poaching measures helped?

- The strengthening of the anti-poaching mechanism in India and Nepal with more manpower, capacity -building of frontline staff, and equipping forest guards with better fighting gear have helped protect the rhino.
- The sentiments of local people attached to the rhino have also been a factor in the sharp drop in the number of rhinos killed,
- The threat from poachers cannot be wished away because of the illegal wildlife trade in next-door Myanmar and beyond in Southeast Asia.

Are elephants endangered?

- India is home to nearly 60% Asian elephants and the last count of the species in 2017 had put the number at 29,964.

- While the number of elephants in India has increased in the past few years, the species is listed as 'Endangered' on the IUCN Red List of threatened species and Schedule I of The Wildlife Protection Act.

What are the challenges?

- The largest land -dwelling mammal is under continuous threat of poaching and conflict with humans.
- The elephant population is not evenly distributed in the country.
- The south Indian States of Karnataka, Kerala, Andhra Pradesh, and Tamil Nadu is home to nearly 44% of India's elephant population.
- The fragmentation of elephant habitats and the construction of linear (railways and roads) and power infrastructure have led to many elephant deaths.
- The change in land use, particularly bringing erstwhile forested areas under agriculture, has aggravated the conflict.
- The Ministry of Environment, Forest and Climate Change launched Project Elephant in 1992 to ensure the long-term survival of elephants in their natural habitats.
- The number of elephant reserves in India is 32 with the latest addition being the Agasthyamalai Elephant Reserve in 2022.
- Elephant corridors and linear narrow habitat linkages which allow

elephants to move between secure habitats are crucial for conservation.

THE HINDU

Cheetah protection

The story so far:

- This year marked the arrival of Namibian cheetahs to India, the first intercontinental transfer of wild cats into the country since independence.
- Eight cheetahs were flown into the Kuno National Park (KNP), Madhya Pradesh, from Namibia.

Why should cheetahs be outside of Africa?

- Cheetahs were once widespread in India as well as in many parts of the world until they were hunted to extinction.
- Only around 8,000 of them survive, and overwhelmingly in Namibia and South Africa.
- A different species, called the Asiatic cheetah, once abundant in India, is found in Iran.
- As part of improving their odds of long-term survival, young animals are being reared as part of conservation efforts in Namibia and then sent to different parts of the world, including India.
- While it is still early days for the cheetah, experts have raised concerns that the KNP has limited space for the cheetah to co-exist

with other predators such as tigers and lions, for which the KNP was originally prepared.

What is the tiger population in India?

- Every four years, India carries out a census of the tiger population across India.
- The latest estimate put the tiger population at 2,967.
- Tigers were reportedly increasing at a rate of about 6% per annum and the area that they occupied was roughly stable, at about 89,000 square km since 2014.

How did the numbers increase?

- The consistent implementation of Project Tiger since 1973, whereby dedicated tiger reserves were established in India, as well as anti-poaching measures have played a significant role in tiger conservation.
- India has 53 tiger reserves with the latest being added early this year.

THE HINDU

GIBs conservation

What is endangering the birds?

- Hearing petitions highlighting deaths of the GIBs due to power transmission lines, a special bench of the apex court led by Chief Justice D.Y. Chandrachud directed Chief Secretaries of Gujarat and Rajasthan

to undertake and complete a comprehensive exercise within four weeks to find out the total length of transmission lines in question and the number of bird diverters required.

- in April 2021, the Supreme Court directed the authorities to convert the overhead cables into underground power lines, (where feasible) within a period of one year and that till such time diverters would have to be hung from existing power lines.
- The GIBs are not great fliers and have a wide sideways vision to maximize predator detection but the species' frontal vision is narrow.
- These birds cannot detect power lines from far and since they are heavy fliers, they fail to maneuver across power lines within close distances.

What steps have been taken?

- Listed in Schedule I of the Indian Wildlife (Protection) Act, 1972, in Appendix I of CITES, as Critically Endangered on the IUCN Red List, the GIBs enjoy the highest protection both in India and globally.
- The earliest estimates show the population was about 1,260 in 1969 but has declined by 75% in the last 30 years.

Are there other threats to the GIB?

- According to scientists, the GIBs are slow breeders and they build their nests on the ground.
- The species have also been subjected to hunting and egg collection in the past. There also has been a decline in prevailing habitat loss as dry grasslands have been diverted for other use.
- Experts also warn of pesticide contamination and an increase of populations of free- ranging dogs and pigs along with native predators, putting pressure on nests and chicks.
- While most of the population of the species is confined to the Jaisalmer Desert National Park (DNP), wildlife enthusiasts believe that more areas outside the protected area must be made suitable for the species.

THE HINDU

Drone and health

- The Meghalaya government decided to capitalize on the liberalized Drone Rules, 2021, announced by the Civil Aviation Ministry to usher in a new era of transportation.
- We focused on public health logistics because of the difficult terrain and the challenging road network in our State.

THE HINDU

Soil nutrients and food security

- Healthy soils are essential for our survival.
- They support healthy plant growth to enhance both our nutrition and water percolation to maintain groundwater levels.
- Soils help to regulate the planet's climate by storing carbon and are the second largest carbon sink after the oceans.
- They help maintain a landscape that is more resilient to the impacts of droughts and floods.
- As soil is the basis of food systems, it is no surprise that soil health is critical for healthy food production.
- World Soil Day (WSD) 2022, annually observed on December 5, aligns with this. WSD 2022, with its guiding theme, 'Soils: Where food begins', is

a means to raise awareness on the importance of maintaining healthy soils, ecosystems, and human well-being by addressing the growing challenges in soil management, encouraging societies to improve soil health, and advocating the sustainable management of soil.

- The main drivers contributing to soil degradation are industrial activities, mining, waste treatment, agriculture, fossil fuel extraction and processing and transport emissions.
- The reasons behind soil nutrient loss range from soil erosion, runoff, leaching, and the burning of crop residues.
- Soil degradation in some form or another affects around 29% of India's total land area.
- This in turn threatens agricultural productivity, in-situ biodiversity conservation, water quality, and the socio-economic well-being of land-dependent communities.
- Nearly 3.7 million hectares suffer from a nutrient loss in soil (depletion of soil organic matter, or SOM).
- Further, excessive use of fertilizers and pesticides, and irrigation with contaminated wastewater are also polluting soils.
- The Impacts of soil degradation are far-reaching and can have

irreparable consequences on human and ecosystem health.

- India's conservation strategy
- The Government of India is implementing a five-pronged strategy for soil conservation.
- This includes making soil chemical-free, saving soil biodiversity, enhancing SOM, maintaining soil moisture, mitigating soil degradation, and preventing soil erosion. Earlier, farmers lacked information relating to soil type, soil deficiency, and soil moisture content.
- To address these issues, the Government of India launched the Soil Health Card (SHC) scheme in 2015.
- The SHC is used to assess the current status of soil health, and when used over time, to determine changes in soil health.
- Other pertinent initiatives include the Pradhan Mantri Krishi Sinchayee Yojana, to prevent soil erosion, regeneration of, natural vegetation, rainwater harvesting and recharging of the groundwater table.
- In addition, the National Mission for Sustainable Agriculture (NMSA) has schemes promoting traditional indigenous practices such as organic farming and natural farming, thereby Agricing dependency on

chemicals and other agri-inputs, and decreasing the monetary burden on smallholder farmers.

- The FAO is collaborating with the National Rainfed Area Authority and the Ministry of Agriculture and Farmers' Welfare (MoA&FW) to develop forecasting tools using data analytics that will aid vulnerable farmers in making informed decisions on crop choices, particularly in rainfed areas.

Working with target States

- The FAO, in association with the Ministry of Rural Development, supports the Deen Dayal Antyodaya Yojana-National Rural Livelihoods Mission's (DAY-NRLM) Community Resource Persons to increase their capacities towards supporting on-farm livelihoods for the adoption of sustainable and resilient practices, organic certification and agri-nutri-gardens
- There is a need to strengthen communication channels between academia, policymakers, and society for the identification, management, and restoration of degraded soils, as well as in the adoption of anticipatory measures.
- These will facilitate the dissemination of timely and

evidence- based information to all relevant stakeholders.

- Greater cooperation and partnerships are central to ensuring the availability of knowledge, sharing of successful practices, and universal access to clean and sustainable technologies, leaving no one behind.

THE HINDU

“China -Indian Ocean Region Forum”

- On November 21, China’s top development aid agency convened the first “China -Indian Ocean Region Forum” in the southwestern Chinese city of Kunming.
- The meet organized by the China International Development Cooperation Agency (CIDCA) is the latest Chinese initiative focusing on the Indian Ocean Region (IOR), underlining Beijing’s growing strategic interests in a region where its economic footprint has been deepening.

What is the China-Indian Ocean Region forum about?

- The CIDCA, which is China’s new development aid agency, currently headed by former Vice Foreign Minister Luo Zhaohui, said in a statement the forum was “the first

high-level official development cooperation forum jointly held by China and countries in the Indian Ocean Region”

- China “proposed to establish a marine disaster prevention and mitigation cooperation mechanism between China and countries in the Indian Ocean region” and “all parties agreed” to “strengthen policy coordination, deepen development cooperation, increase resilience to shocks and disasters, and enhance relevant countries’ capacity to obtain economic benefits through the use of marine resources such as fisheries, renewable energy, tourism, and shipping in an organized way.”

Which countries have backed the forum?

- The organisers have said the forum was attended by “high -level representatives” and “senior officials” from 19 countries: Indonesia, Pakistan, Myanmar, Sri Lanka, Bangladesh, Maldives, Nepal, Afghanistan, Iran, Oman, South Africa, Kenya, Mozambique, Tanzania, Seychelles, Madagascar, Mauritius, Djibouti, and Australia.

Where does India stand?

- Xu Wei, spokesperson for CIDCA, said India as “a major country in the Indian Ocean region, was invited to this forum” and added that China “looks forward to meeting India at the next forum”.
- That prospect appears unlikely.
- New Delhi has viewed China’s recent moves in the region warily, including the recent visit of a Chinese military tracking vessel, the Yuan Wang 5, to Sri Lanka.
- Moreover, India sees the IORA as an already established platform for the region, which has 23 members, including Australia and Maldives with 10 dialogue partners which include China, Japan, Russia, the U.K., and the U.S.

What are China’s plans for the IOR?

- The forum has underlined China’s stepped-up interest in the IOR, where it is already a major trading partner for most countries and where lie sea routes are vital to China’s economic interests.
- The CIDCA forum is the latest initiative to reflect Beijing’s view that it has a clear stake in the region, and that more such initiatives are likely.
- Earlier this year, China’s Foreign Minister Wang Yi, during a visit to Sri Lanka, proposed creating a forum

“on the development of Indian Ocean island countries” to “build consensus and synergy, and promote common development”.

- He called on Sri Lanka to “play an important role” in this initiative.
- The stepped- up regional diplomacy comes while China is establishing a more frequent military presence in the waters of the IOR.
- Beijing’s first ever overseas military facility was set up in Djibouti near the Horn of Africa.
- Chinese military ships, tracking vessels, and submarines have been visiting ports in the region with greater frequency.

THE HINDU

RBI e rupee

- The story so far: The Reserve Bank of India this week launched the digital rupee on a pilot basis.

What is the digital rupee?

- The digital rupee, or the e-rupee, is a central bank digital currency issued by the RBI.
- It is similar to the physical cash that you hold in your wallet except that the e-rupee is held electronically in a digital wallet overseen by the RBI.
- The digital rupee is recognized as a legal tender by the RBI and thus has

to be accepted by everyone in the country as a medium of exchange.

- It is, however, different from deposits that you hold in a bank.
- Unlike deposits which are paid interest, the digital rupees in your wallet are not paid any interest by the central bank.
- Deposits held in banks can be converted into digital rupees and vice-versa.

Is there a need for the digital rupee?

- The RBI believes that the digital rupee will make the rupee more attractive as a currency to users when compared to cryptocurrencies.
- Cryptocurrencies have been viewed by many investors as alternatives to fiat currencies which progressively lose value over time due to debasement by central banks.
- Since such a trend could threaten their sovereignty, central banks have been trying to come up with their own digital currencies.
- The RBI also believes that the digital rupee will be easier and more economical to produce when compared to physical cash notes.
- More importantly, transactions carried out using digital rupees, in contrast to physical transactions, are more easily traceable by authorities.

What are the risks?

- The introduction of central bank digital currencies internationally has worried many who believe that it could disrupt the banking system.
- When interest rates offered by banks are low, people may be more prone to converting their bank deposits into digital currencies since they would not lose out much in the way of interest income by making the shift.
- Such an event could cause the cash holdings of banks to drop and hinder banks' capacity to create loans
- The digital rupee could also play a crucial role in India's transition towards a cashless society.
- A rise in the use of the digital rupee could eventually free banks from having to maintain sufficient cash deposits before they expand their loan books.
- This could happen if digital rupee deposits turn out to be considered equivalent to other forms of virtual money such as deposits created initially as loans by banks.

What do the critics say?

- They point to the power that digital currencies give central banks to supervise economic activity, and believe that this could act as a deterrent to economic growth if

legitimate economic activities are deemed illegal by governments.

- The future of central bank digital currencies as an alternative to private cryptocurrencies may also be overblown.
- Private Cryptocurrencies have found demand among certain investors not simply because they are digital.
- Rather, they are thought to be better stores of value, exhibiting more stable purchasing power than fiat currencies.

THE HINDU

Civil aviation ranking

- In the latest rankings by the Indian Civil Aviation Organisation (ICAO), India has jumped to 48th place from 102nd spot in 2018.
- The ranking, which also places it ahead of China (49), is the highest ever received by India, officials say. “A robot safety oversight system certified and acknowledged by the experts is a sine qua non for flight safety and very assuring for the flying public.

THE HINDU

OPEC

- OPEC-plus countries include Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico,

Oman, Russia, South Sudan and Sudan.

- The Organization of the Petroleum Exporting Countries (OPEC) is a permanent, intergovernmental organization, created at the Baghdad Conference in 1960, by Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela.
- It aims to manage the supply of oil in an effort to set the price of oil in the world market, in order to avoid fluctuations that might affect the economies of both producing and purchasing countries.
- It is headquartered in Vienna, Austria.
- OPEC has a total of 14 Member Countries viz. Iran, Iraq, Kuwait, United Arab Emirates (UAE), Saudi Arabia, Algeria, Libya, Nigeria, Gabon, Equatorial Guinea, Republic of Congo, Angola, Ecuador and Venezuela are members of OPEC.

THE HINDU

EU adapts its state Aid Rule

- The 27-country bloc fears that the U.S. \$430 billion Inflation Reduction Act with its generous tax breaks may lure away EU businesses and disadvantage European companies, from car manufacturers to makers of green technology.

THE INFLATION REDUCTION ACT OF 2022

- The Inflation Reduction Act of 2022 will make a historic down payment on deficit reduction to fight inflation, invest in domestic energy production and manufacturing, and reduce carbon emissions by roughly 40 percent by 2030.
- The new proposal for the FY2022 Budget Reconciliation bill will invest approximately \$300 billion in Deficit Reduction and \$369 billion in Energy Security and Climate Change programs over the next ten years.
- The agreement calls for comprehensive Permitting reform legislation to be passed before the end of the fiscal year.
- Permitting reform is essential to unlocking domestic energy and transmission projects, which will lower costs for consumers and help us meet our long-term emissions goals.

THE HINDU

Climate talks

There are three problems with the current negotiating process.

First, citizens in developed countries are not even aware that two-thirds of their national emissions of carbon dioxide come from their diet, transport, and residential and commercial sectors, which together constitute the major share of their GDP; the consumption sectors are not independent silos but reflect their urban lifestyles.

Second, the process ignores that global well-being will also follow the urbanization of the developing country's population, requiring fossil fuels for infrastructure and energy to achieve comparable levels.

Third, the need for vast quantities of cement and steel in developing countries for infrastructure constituting essential emissions, as they urbanize is not being considered.

"Urbanization has changed the nation with seventy-five percent of its people living in the urban area ...we must see ourselves not only as victims of environmental degradation but as environmental aggressors and change our patterns of consumption and production accordingly.

The Paris Agreement (2015) agreed to a 1.5°C global temperature goal.

The Intergovernmental Panel on Climate Change (IPCC) in 2018 recommended that net emissions needed to zero out around 2050. In Glasgow, in 2021, negotiators

zeroed in on coal to reduce future emissions.

Points to be considered

First, the process adopted the structure of international law in a manner that rejected historical responsibility for a continuing problem and steadily shifted the burden to China and India.

Second, the agenda was set around globalized material flows described as global warming (the symptom), and not wasteful use of energy.

Third, public finance is used as a means to secure a political objective, and not to solve the problem itself.

The \$100 billion promised at Paris along with pre-2020 commitments constituting the incentive for developing countries to agree to a global temperature goal has not materialized.

And, new funding for 'Loss and Damage' will be from a "mosaic of solutions", constituting a breach of trust.

Fourth, the longer-term trend has been ignored. With one sixth of the global population, the developed country share in 2035 will still be 30%.

Asia's emissions with half the world's population will rise to 40% remaining within its carbon budget.

Pressures to further reduce emissions displace their human rights.

India's thrust on LiFE (or "Lifestyle for Environment"), with the individual shifting from wasteful consumption of natural

resources, goes back to the original science. Consumption-based framing challenges the 'universalism' that has dominated the negotiations and its common path of reductions based on single models.

THE HINDU

Parole vs furlough

Parole and furlough are two provisions that are covered under Section - 432 of the Criminal Procedure Code 1973.

Parole is the temporary release of the prisoner and the same is for furlough but parole is granted at the request of the prisoner and can be denied whereas furlough is a basic right of a prisoner.

Furlough is given in cases of long-term imprisonment.

A prisoner's sentence is considered to be remitted during his furlough time.

It is to be allowed on a regular basis for no reason other than to allow the prisoner to maintain familial and social relationships and to counteract the negative consequences of long-term imprisonment.

The right to be released on furlough is a substantial and legal right of the prisoner, and it cannot be rejected if permitted by law.

The Prisons Act, of 1894, and the Prisoners Act, of 1900, did not contain any specific provision pertaining to parole and/or furlough.

However, Section 59 of the Prisons Act empowers States to make rules inter alia

“for the shortening of sentences” and “for rewards for good conduct”.

Since “prisons, reformatories...” fall in the State List of the Seventh Schedule of the Constitution, States are well within their reach to legislate on issues related to prisons.

While ‘furlough’ is considered an incentive for good conduct in prison and is counted as a sentence served, parole or leave is mostly a suspension of sentence.

Emergency parole or leave is granted for specified emergencies such as a death, serious illness, or marriage in the family.

While most States consider only close relatives such as spouse, parents, son, daughter, brother, and sister as close family, Kerala has a long list of more than 24 relatives in case of death and 10 in case of marriage.

Though regular parole or leave is granted after serving a minimum sentence (varying from one year to four years) in prison, some States include other familial and social obligations such as sowing or harvesting of agricultural crops, essential repair of house, and settling family disputes.

Each State has a different yardstick to punish a prisoner who does not surrender after parole or furlough in time.

Difference between parole and furlough

Serial no.	Parole	Furlough
1.	It is not a right of the prisoner.	It is the right of the prisoner.
2.	It is releasing a prisoner with a suspension of the sentence.	It is releasing a prisoner with remission of his sentence.
3.	In the case of short-term confinement, parole may be granted.	In the case of long-term confinement, Furlough may be granted.
4.	It can be granted a number of times.	There is a limitation to grant furlough.
5.	Parole lasts for one month.	Furlough lasts for fourteen days maximum.
6.	A specific justification is necessary.	It is to break the monotony of punishment so no justification is needed.
7.	The days of leave aren't included within the sentenced period.	The sentence of convict goes along with the furlough period.
8.	It is granted by the Divisional Commissioner.	It is granted by the Deputy Inspector General of Prisons.

THE HINDU

Crisis of labor post-pandemic

The International Labour Organisation (ILO) recently released two reports that gave an indication of the global employment scenario post pandemic.

The 'Global Wage Report 2022- 2023: The Impact of inflation and COVID-19 on wages and purchasing power' discuss the twin crises, inflation, and economic slowdown, which created a "striking fall" in real monthly wages around the globe.

The report blames the war in Ukraine and the global energy crisis for this situation.

Another report, the 'Asia- Pacific Employment and Social Outlook 2022: Rethinking sectoral strategies for a human-centered future of work' stated that the Asia- Pacific region lost about 22 million jobs in 2022.

The decrease in wages is placing millions of workers in a dire situation. "Income inequality and poverty will rise if the

purchasing power of the lowest paid is not maintained,"

Is inequality rising?

At the Asia-Pacific level, only the jobs in high- skill occupations saw a recovery from the COVID-19 crisis, which is true across all sub-regions.

The ILO said it is raising concerns about increased inequality.

While there is an employment gain of 1.6% among high-skill workers between 2019 and 2021, there is no such substantial gain among low-to-medium-skill workers.

Among the G-20 countries, the report noted a significant gap in the average level of real wages between advanced G-20 countries and emerging G-20 countries such as India.

What are the ILO's remedies?

The report suggests a set of policy options and responses to the cost- of- living crisis. Citing studies, the report said that 75 to 95 million people were pushed into extreme poverty during COVID-19.

The ILO states that the creation of decent formal wage employment is a prerequisite for a more equitable distribution of wages and income, and is a key contributor to equitable and sustainable wage growth.

It wants governments to focus on the gender pay gap as when women leave the labor market, they are less likely to return than men.

Most importantly, the report says that a multilateral approach is a key to solving the crises around us.

There is an urgent need to address the negative effects of climate change; increasing inequalities; poverty, discrimination, violence, and exclusion endured by millions of people, including the discrimination that women and girls continue to suffer in many parts of the world;

The lack of vaccines and access to adequate sanitation and essential healthcare for all; and the growing digital divide between poor and wealthier countries.

THE HINDU

Vizhinjam port protest

Vizhinjam has been on the boil for the past four months with protesters mainly fisher folk and their families laying siege to the -construction Vizhinjam port.

The protestors have raised seven demands which include, a scientific study to assess the impact of the port work on the shoreline after stopping the construction of the port.

The port is expected to leverage the growth of minor ports in Kerala and other regional ports, creating thousands of employment opportunities.

Is the Vizhinjam project important?

Located on the southern tip of the Indian Peninsula, just 10 nautical miles from the major international sea route and east-west shipping axis, and with a natural water depth of more than 20m within a

nautical mile from the coast, the Vizhinjam port is likely to play a pivotal role in the maritime development of the country and Kerala.

The port is expected to leverage the growth of minor ports in Kerala and other regional ports, creating thousands of employment opportunities.

Has it aggravated coastal erosion?

All types of construction work along a coast, aggravate sea erosion (loss of beach) and accretion (gain of beach).

The report noted that the relatively high number of cyclones formed over the Arabian Sea after cyclone Ockhi in 2017 was the main reason for the recent erosion and accretion and that the impact of the port activity on either side of the coast had less significance.

THE HINDU

Dominique Lapierre

French writer Dominique Lapierre, the author of best-selling books on India like Freedom at Midnight and City of Joy and whose novels sold tens of millions of copies, has died.

India Sri Lanka- Dairy sector

In a bid to scale up its dairy production to become self-sufficient, Sri Lanka has sought technical assistance from India's National Dairy Development Board (NDDB) and market leader Amul, reviving a collaboration that the island attempted in the late 1990s, but failed to take forward.

Currently, Sri Lanka's domestic dairy production meets less than half of its requirements.

The dollar-strapped island nation spends about \$300 million annually on dairy imports, mostly from New Zealand.

As the country's economy crashed earlier this year, leading to severe shortages, milk powder widely used in Sri Lanka where fresh milk is scarce was unavailable to most.

With living costs soaring through the year, milk products, locally produced or imported, remain out of reach for many poor families.

They have been forced to ration their dairy intake, with adults switching to plain tea and children drinking milk fewer times a day.

THE HINDU

Happy Seeder

- The burning of biomass in and around Delhi, if audited properly, would be the same as stubble burning in other states.
- What is required is a fundamental shift in agricultural patterns. Delhi chokes on its own dust and industrial activities.
- Vehicles are another source of pollution in the city.

Happy Seeder

- The Happy Seeder is a tractor-mounted machine that cuts and lifts rice straw, sows wheat into the soil, and deposits the straw over the sown area as mulch.
- Happy Seeder-based systems emerge as the most profitable and scalable residue management practice as they are, on average, 10%–20% more profitable than burning.
- This option also has the largest potential to reduce the environmental footprint of on-farm activities, as it would eliminate air pollution and would reduce greenhouse gas emissions per hectare by more than 78%, relative to all burning options.



EU CONCERN ON US IRA

- French President Emmanuel Macron during his two-day visit to the U.S. questioned Joe Biden about clean energy subsidies in the new Inflation Reduction Act (IRA), which European countries believe are discriminatory to non-American companies.

What is the U.S. IRA?

- Signed into law on August 16, the IRA is a \$430 billion package of federal spending, tax breaks, credits, and levies, aimed at fighting climate change, reducing healthcare costs, and making large corporations pay their “fair share” in taxes.
- The IRA combines climate action goals with industrial policy, aiming to transition to clean energy by incentivizing local manufacturing of renewable energy components.
- It also seeks to reduce American reliance on China for materials and components for the clean energy industry.
- In order to bolster clean energy development in the U.S., the IRA provides consumer and industry- side incentives.
- To promote the use of electric vehicles (EV) and to secure domestic supply chains for their manufacturing, the federal tax incentive policy for EVs has been changed.
- The Act offers \$10 billion investment tax credit to build clean technology manufacturing facilities, two billion dollars in grants for refurbishing existing auto manufacturing facilities to make zero-emission vehicles, and up to \$20 billion in loans to build new EV manufacturing facilities across the country.

What are Europe's concerns?

- Europe's high energy dependence on Russia led to energy shocks in the wake of the Russia-Ukraine war, leading to energy shortages, skyrocketing power prices, and a harsh winter.
- The 27 member countries of the EU fear that the IRA tax credits and subsidies to EVs and other green product makers in North America and free-trade partner countries put European companies at a disadvantage and may push these companies to move critical parts of their supply chains to America.
- The EU's own new green plan 'Fit for 55' is targeting to cut CO2 emissions from cars by 55% and vans by 50% by 2030 and all emissions from cars by 2035.
- For this, it will need to significantly increase its uptake of EVs.
- Although China dominates the EV purchasing market, Europe has also been posting high growth in EV demand vis-avis the total auto demand, even faster than the U.S.
- According to the International Energy Agency (IEA), nine of the top 10 countries by share of EVs in the total car stock are in Europe.
- To meet its emissions targets, the EU will benefit from its local automakers ramping up manufacturing, but the IRA raises fears of automakers moving to the U.S.

THE HINDU

CNAP Feature

- The Telecom Regulatory Authority of India (TRAI) floated a consultation paper seeking comments about the potential

introduction of a Calling Name Presentation (CNAP) feature.

- The feature would provide an individual with information about the calling party (similar to 'True caller' and 'Bharat Caller ID & Anti-Spam').
- The idea is to ensure that telephone subscribers are able to make an informed choice about incoming calls and curb harassment by unknown or spam callers there have been rising concerns about robocalls (calls made automatically using IT-enabled systems with a pre-recorded voice), spam calls and fraudulent calls.

Analysis

- "Just by showing the identity would not mean much, once the system (to identify and mark spammers) gets built and hundreds of people are able to utilize the system, only then would the system have a meaningful impact."
- The government must also invest in digital literacy, skilling citizens to navigate and use the tech better, ensuring they do not share their data indiscriminately and are informed about dangers such as financial fraud.

THE HINDU

ChatGPT

What is the AI bot ChatGPT?

- ChatGPT is a prototype dialogue-based AI chatbot capable of understanding natural human language and generating impressively detailed human-like written text.
- It is the latest evolution of the GPT or Generative Pre-Trained Transformer family of text-generating AIs.

Who made it?

- The new AI is the latest chatbot from the Elon Musk-founded independent research body OpenAI foundation

How does it work?

- Trained by AI and machine learning, the system is designed to provide information and answer questions through a conversational interface.
- The AI is trained on a huge sample of text taken from the internet.
- OpenAI said the new AI was created with a focus on ease of use.
- “The dialogue format makes it possible for ChatGPT to answer follow-up questions, admit its mistakes, challenge incorrect premises, and reject inappropriate requests,”

How can it be used?

- Early users have described the technology as an alternative to Google because it is capable of providing descriptions, answers, and solutions to complex questions including ways to write code and solve layout problems and optimization queries.
- Real-world applications could include generating content for websites, answering customer inquiries, providing recommendations as well as creating automated chatbots.

THE HINDU

YUAN WANG 5

- Chinese President Xi Jinping will visit Saudi Arabia this week for what Beijing is calling a “milestone” first-ever China- Arab summit to boost relations and already deep economic ties.

- China 2020 replaced the European Union as the GCC’s largest trading partner with trade reaching \$161 billion.
- China was involved in “massive infrastructure projects” in the region including the Lusail stadium that is hosting World Cup matches in Qatar and high-speed railway lines in Saudi Arabia, as well as being a major oil importer.

THE HINDU

Milestone summit

- Chinese President Xi Jinping will visit Saudi Arabia this week for what Beijing is calling a “milestone” first-ever China- Arab summit to boost relations and already deep economic ties.
- China in 2020 replaced the European Union as the GCC’s largest trading partner with trade reaching \$161 billion.
- China was involved in “massive infrastructure projects” in the region including the Lusail stadium that is hosting World Cup matches in Qatar and high speed railway lines in Saudi Arabia, as well as being a major oil importer.

THE HINDU

Maharashtra-Karnataka dispute

Maharashtra and Karnataka have sparred over the inclusion of some towns and villages along the state border ever since the State Reorganisation Act was passed by the Parliament in 1956.

The Act was based on the findings of the Justice Fazal Ali Commission, which was appointed in 1953 and submitted its report two years later.

On November 1, 1956, Mysore state later renamed Karnataka was formed, and differences between the state and the neighboring Bombay state later Maharashtra erupted.

Maharashtra was of the view that the northwestern district of Karnataka, Belagavi, should be part of the state, leading to a decade-long violent agitation and formation of Maharashtra Ekikaran Samithi (MES), which still holds sway in parts of the district and the eponymous city.

THE HINDU

SpaceTech Innovation Network (SpIN)

The Indian Space Research Organisation (ISRO) has signed a MoU with Social Alpha, a multistage innovation curation and venture development platform for science and technology start-ups, to launch SpaceTech Innovation Network (SpIN).

SpIN is India's first dedicated platform for innovation, curation, and venture

development for the burgeoning space entrepreneurial ecosystem.

The novel partnership is a significant step forward in providing further stimulus to India's recent space reform policies and will work towards identifying and unleashing the market potential of the most promising space tech innovators and entrepreneurs in India,

SpIN will primarily focus on facilitating space tech entrepreneurs in three distinct innovation categories: Geospatial Technologies and Downstream Applications; Enabling Technologies for Space & Mobility; and Aerospace Materials, Sensors, and Avionics.

"Innovative technologies are expected to bring a paradigm shift in utilizing the space applications to maximize the economic, social, and environmental benefits for the larger society.

THE HINDU

Kaundinya Wildlife Sanctuary

Kaundinya Wildlife Sanctuary is a wildlife sanctuary and an elephant reserve situated in Andhra Pradesh, India. It is the only sanctuary in Andhra Pradesh with a population of Asian elephants,

Conjugal rights

The story so far:

The State of Punjab has furthered the cause of the right to life and personal liberty of prisoners by allowing conjugal visits for inmates.

It is expected that this initiative will lead to the strengthening of matrimonial bonds and also ensure good conduct of prisoners.

What are conjugal rights?

Broadly speaking, conjugal rights are rights created by marriage, that is, the right of the husband or the wife to the company of their spouse.

In the context of prisons, however, conjugal visits refer to the concept of allowing a prisoner to spend some time in privacy with his spouse within the precincts of a jail.

Prisoner rights are internationally recognized through the United Nations Standard Minimum Rules for the Treatment of Prisoners, the Universal Declaration of Human Rights, and the International Covenant on Civil and Political Rights, etc.

Through such instruments, prisoners are guaranteed the right to life and inherent dignity.

The right to maintain family relations including conjugal visits are included in these treaties.

What are the judicial views?

In the case of *Sunil Batra vs Delhi Administration* (1979, SC), Justice Iyer observed that “visit to prisoners by family and friends are solace in isolation: and only a dehumanized system can derive vicarious delight in depriving prison inmates of this humane amenity.”

The High Court held that this right to conjugality is available to prisoners under Article 21, subject to restrictions.

However, in the case of *Meharaj vs State* (2022), the Madras HC while considering the question of whether conjugal rights form part of the right to life and personal liberty guaranteed by Article 21, observed

that there have to be differential standards in enforcement of Article 21 for law abiders and law violators.

The Court observed that even though conjugal visits could not be held as a fundamental right, the prisoner would still be eligible to avail leave for conjugal visits if there are ‘extraordinary reasons’ such as ‘infertility treatments’.

THE HINDU

NJAC

The story so far:

Last week, Vice -President Jagdeep Dhankhar commented on the ongoing heated debate between the Central government and the Supreme Court over the matter of judicial appointments.

Referring to the 2015 verdict of the SC which struck down the National Judicial Appointments Commission (NJAC) and the 99th Amendment, Mr. Dhankhar asked how the judiciary could have run down a unanimously- passed constitutional provision which reflected “the will of people”

What was the NJAC?

In August 2014, Parliament passed the Constitution (99th Amendment) Act, along with the National Judicial Appointments Commission (NJAC) Act, which together provided for the creation of an independent commission to appoint judges to the Supreme Court (SC) and High Courts (HC).

This commission was to replace the collegium system.

Articles 124 and 217 of the Constitution deal with the appointment of judges to the SC and HCs of the country.

Article 124(2) states “every Judge of the Supreme Court shall be appointed by the President” after “consultation” with the judges of the SC and the HCs.

So, while the collegium system itself does not figure in the Constitution, its legal basis is found in three SC judgments usually referred to as the ‘Judges Cases’.

In order to replace this system which received criticism over the years for its lack of transparency, among other provisions, the Constitution (99th Amendment) Act, introduced three primary Articles.

Article 124A which created the NJAC, a constitutional body to replace the collegium system,

Article 124B which conferred the NJAC with the power to make appointments to Courts and

Article 124C which accorded express authority to Parliament to make laws regulating the manner of the NJAC’s functioning.

Under the NJAC Act, the Chief Justice of India and Chief Justices of the HCs were to be recommended by the NJAC on seniority while SC and HC judges were to be recommended on the basis of ability, merit, and “other criteria specified in the regulations”

The Centre also argued that the Act in no way took away the primacy of the judiciary but in fact, diluted the power of the executive as only one member, the Law Minister, was in the NJAC as opposed to three SC judges.

It also said that the amendment was “perfectly consonant” with the basic structure as it strengthened the

“independence of the judiciary, checks and balances and democracy”

THE HINDU

BIMSTEC vs SAARC

December 8 is commemorated as SAARC Charter Day.

It was on this day, 37 years ago, that the South Asian Association for Regional Cooperation (SAARC), an intergovernmental organization, was established by Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka to promote economic growth in South Asia.

Afghanistan acceded to SAARC later.

However, SAARC has failed abjectly in accomplishing most of its objectives.

South Asia continues to be an extremely poor and least integrated region in the world.

The intraregional trade and investment in South Asia are very low when compared to other regions such as the Association of South East Asian Nations (ASEAN) and Sub-Saharan Africa.

Pakistan has adopted an obstructionist attitude within SAARC by repeatedly blocking several vital initiatives such as the motor vehicles agreement, aimed at bolstering regional connectivity.

SAARC is the only intergovernmental organisation with a pan- South Asia reach.

India can judiciously employ it to serve its interests in the entire region

A weakened SAARC also means heightened instability in other promising regional

institutions such as the South Asian University (SAU)

Regionalism has brought immense success in other parts such as East Asia and Africa

BIMSTEC

BIMSTEC comprises five South Asian nations (Bangladesh, Bhutan, Nepal, India, and Sri Lanka) and two ASEAN countries (Myanmar and Thailand). Importantly, Pakistan is not a BIMSTEC member.

In recent years, India seems to have moved its diplomatic energy away from SAARC to BIMSTEC. This resulted in BIMSTEC, after 25 years, finally adopting its Charter earlier this year.

The BIMSTEC Charter is significantly better than the SAARC Charter.

For instance, unlike the SAARC Charter, Article 6 of the BIMSTEC Charter talks about the 'Admission of new members to the group.

This paves the way for the admission of countries such as the Maldives.

Notwithstanding the improvements, the BIMSTEC Charter, to boost economic integration, does not contain the flexible participation scheme of the kind present in the ASEAN Charter.

This flexible scheme, also known as the 'ASEAN Minus X' formula, allows two or more ASEAN members to initiate negotiations for economic commitments.

Thus, no country enjoys veto power to thwart economic integration between willing countries.

A flexible 'BIMSTEC minus X' formula might have allowed India and Bangladesh or India and Thailand to conduct their ongoing

bilateral free trade agreement (FTA) negotiations under the broader BIMSTEC umbrella.

Some steps to take

BIMSTEC should not end up as another SAARC. For this, its member countries should raise the stakes.

A high-quality FTA offering deep economic integration.

Likewise, India should explore legal ways to move successful SAARC institutions such as SAU to BIMSTEC.

These steps will give stronger roots to BIMSTEC and enable erecting a new South Asian regional order based on incrementalism and flexibility, ushering in prosperity and peace in the region.

THE HINDU

World Bank report on Remittances

- Remittances to India are set to touch a record \$100 billion in 2022, according to the World Bank's latest Migration and Development Brief titled, 'Remittances Brave Global Headwinds'.
- India received \$89.4 billion in 2021 this is the first time a country will reach the \$100 billion mark.

What is a remittance?

- It denotes a sum of money sent by one party to another.
- These days, the term describes the money sent by someone working abroad to their family back home.
- In the case of India, the largest sources of remittances have been from Indians working in the Gulf Cooperation Council (GCC) countries (UAE, Bahrain, Saudi Arabia, Oman, Qatar, Kuwait), and the U.S./U.K.

What are the reasons behind the sustained growth in remittances?

- According to the World Bank, one of the main reasons is the gradual reopening of various sectors in host-country economies, following pandemic-induced closures and travel disruptions.
- This "improved migrant workers' incomes and employment situations and thereby their ability to send money home.

What are the reasons behind the resilience of India's inward remittance flows?

- The report points to a structural shift in India's remittance economy, both in terms

of the top destination countries, and the nature of the jobs held by migrants.

- It notes that "remittances have benefitted from a gradual structural shift in Indian migrants' key destinations from largely low-skilled, informal employment in the Gulf Cooperation Council (GCC) countries to a dominant share of high-skilled jobs in high-income countries such as the U.S., the U.K., and East Asia (Singapore, Japan, Australia, New Zealand)."
- With 20% of India's emigrants in the U.S. and the U.K., "the structural shift in qualifications and destinations has accelerated growth in remittances tied to high salaried jobs, especially in services," states the report
- In the GCC countries, Indian migrants benefited from governments' direct support measures to keep inflation low.
- Finally, the report adds that Indian migrants may also have "taken advantage" of the depreciation of the Indian rupee vis-à-vis the U.S. dollar.

What does the report say about future trends?

- The report predicts that growth in remittances will fall high-income³ as the GDP growth in high-income countries continues to slow, eroding migrants' wage gains.
- For South Asia as a whole, the growth in remittances is expected to fall from 3.5% in 2022 to 0.7% in 2023.
- In the U.S., higher inflation combined with a slowdown will limit remittance flows, while the GCC countries will also see a cooling of remittance outflows following a slowdown.
- The demand for labor is expected to soften as construction activities for the FIFA World Cup in Qatar have ended.

- Nonetheless, remittances to India are forecast to grow by 4% next year, “supported by the large share of Indian migrants earning relatively high salaries in the U.S., the U.K., and East Asia”.

THE HINDU

India as G20 Presidency

What does India’s presidency mean?

- The G20 Summit is held annually under a rotating presidency, which rests with India for 2023.
- The group does not have a permanent secretariat, and the presidency is supported by the previous, current, and future holders of the post, together called the troika.
- Along with India, 2023’s troika includes Indonesia and Brazil.
- As the President-Nation, India will host the 18th G20 Heads of State and Government Summit in December 2023 in New Delhi.
- Apart from hosting the summit and setting the theme, the G20 presidency does not come with any formal powers.
- However, India plans on showcasing its philosophies of Vasudhaiva Kutumbakam (one earth, one family, one future), and LiFE (Lifestyle for Environment) through the theme and the logo of the event.
- India’s G20 presidency is “striving for just and equitable growth for all in the world, as we navigate through these turbulent times, in a sustainable, holistic, responsible, and inclusive manner,”
- India’s presidency also comes as many countries witness inflation and recession trends, compounded by the Russia-Ukraine war and the standoff between the European Union and Russia.

- India’s own problems with China, also a part of the G20 group, pose a potential issue for the effective functioning of the forum.

How does the G20 forum work?

- The processes under G20 are divided into two parallel tracks the finance track and the Sherpa track.
- The finance track is led by Finance Ministers and central bank governors of member nations, who meet throughout the year.
- Sherpas, who are personal emissaries of leaders, lead the Sherpa track.
- They oversee negotiations all through the year, discussing agenda items for the summit and coordinating the substantive work of the G20.
- Working groups designed around specific themes operate within both tracks.
- These include representatives from relevant ministries of member nations and invited/guest countries too.
- Various international organizations such as the United Nations, International Monetary Fund, and the Organisation for Economic Co-operation and Development also participate in working groups.

THE HINDU

Wild Life (Protection) Amendment Bill

- Wild Life (Protection) Amendment Bill seeks better management of protected areas and also provides for certain permitted activities like grazing or movement of livestock and bona fide use of drinking and household water by local communities.

- The Bill, which had undergone the scrutiny of a parliamentary panel, seeks to conserve and protect wildlife through better management of protected areas and rationalise schedules which list out species under the Wildlife (Protection) Act, 1972, the Wild Life (Protection) Act, 1972, was enacted to provide for the protection of wild animals, birds and plants with a view to ensure the ecological and environmental security of the country.
- The bill also seeks to include the aspects of "conservation" and "management" of wildlife that are covered by the Act and make amendments for better management of protected areas.
- It proposes to rationalize and amend the schedules, which list out wildlife species, for the purposes of clarity, and ensure better care of seized live animals and disposal of seized wildlife parts and products.
- The bill further seeks to enable control of invasive alien species and allow for the transfer or transport of live elephants by persons having ownership certificates in accordance with conditions prescribed by the central government.
- It also proposes to insert a new Chapter VB in the principal Act for the regulation of international trade in endangered species of wild fauna and flora and allow state boards for wildlife to constitute standing committees.
- India is a party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora, which requires that appropriate measures are taken to enforce the provisions of the convention.

THE HINDU

Dhara Mustard Hybrid -11 (DMH-11)

- Field trials of the transgenic mustard variety, Dhara Mustard Hybrid -11 (DMH-11), revealed them to be higher yielding and they did not deter the pollination habits of honeybees,
- The DMH-11 had recently been approved by the Genetic Engineering Appraisal Committee (GEAC) for cultivation in farmer fields, as a precursor to commercial cultivation.
- The GEAC is an autonomous body of experts authorized by the Environment Ministry to appraise the safety of genetically modified seeds.
- The only other transgenic seed permitted to be commercially cultivated in India is BT cotton.
- "Extensive studies carried out on toxicity, allergenicity, compositional analysis, field trials, and environmental safety studies of GM mustard lines vs their non-transgenic comparators have provided evidence that they are safe for cultivation and for food and feed use.
- Visitation of bees to the transgenic lines is similar to the non-transgenic counterparts as per the data recorded during the trials.

The Bill amends the Energy Conservation Act, of 2001

- The Bill amends the Energy Conservation Act, 2001 to empower the central government to specify a carbon credit trading scheme.
- Designated consumers may be required to meet a proportion of their energy needs from non-fossil sources.
- The Energy Conservation Code for buildings will also apply to office and

residential buildings with a connected load of 100 kilowatts or above.

- Energy consumption standards may be specified for vehicles and ships.

Key Issues and Analysis

- Carbon credit trading aims to reduce carbon emissions, and hence, address climate change.
- The question is whether the Ministry of Power is the appropriate Ministry to regulate this scheme.
- A further question is whether the market regulator for carbon credit trading should be specified in the Act.
- Same activity may be eligible for renewable energy, energy savings, and carbon credit certificates.
- The Bill does not specify whether these certificates will be interchangeable.
- Designated consumers must meet certain non-fossil energy use obligations.

The Economic and Technology Co-operation Agreement (ETCA)

- The Economic and Technology Co-operation Agreement (ETCA) is a proposed diplomatic arrangement that seeks to add to the existing free trade agreement between the Republic of India and the Republic of Sri Lanka, primarily in relation to trade-in services and the service sector; it seeks to emulate a proto freedom-of-movement system and a single market.
- The proposal is championed by supporters as a method to introduce low-cost goods for low-income people in Sri Lanka and increase sales of high-end goods to India, while also making Sri Lanka more attractive for FDI.
- But many lobby groups have become concerned that India would flood Sri Lanka with cheaper labor, with the IT industry in

particular worried about the influx of cheaper Indian tech workers.

The objectives of ETCA

- To strengthen and advance the economic, trade, investment, and technology cooperation between the two parties
- To promote further liberalization of trade in goods, liberalizing trade in services and gradually establish fair, transparent, and facilitative trading, investment, and investment protection mechanisms
- To expand areas of economic cooperation and establish a cooperation mechanism.

THE HINDU

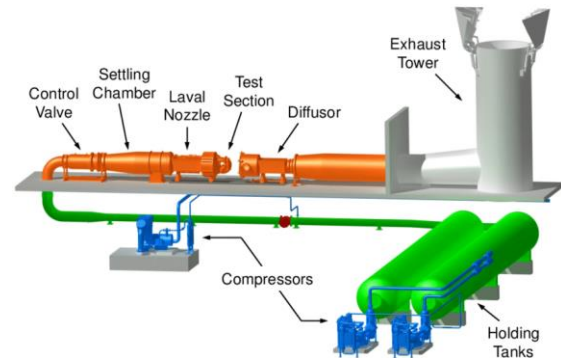
Three medicinal plant

- Three medicinal plant species found in the Himalayas have made it to IUCN Red List of Threatened Species following a recent assessment.
- *Meizotropis pellita* has been assessed as 'critically endangered', *Fritillaria cirrhosa* as 'vulnerable', and *Dactylorhiza hatagirea* as 'endangered'.
- *Meizotropis pellita*, commonly known as Patwa, is a perennial shrub with restricted distribution that is endemic to Uttarakhand.
- "The species is listed as 'critically endangered' based on its limited area of occupancy (less than 10 sq. km)
- "The essential oil extracted from the leaves possesses strong antioxidants and can be a promising natural substitute for synthetic antioxidants in pharmaceutical industries.
- *Fritillaria cirrhosa* (Himalayan fritillary) is a perennial bulbous herb.
- "It is reasonable to conclude a decline of at least 30% of its population over the assessment period (22 to 26 years).
- Considering the rate of decline, long generation length, poor germination potential, high trade value, extensive harvesting pressure, and illegal trade, the species is listed as 'vulnerable,'"
- In China, the species is used for the treatment of bronchial disorders and pneumonia.
- The plant is also a strong cough suppressant, the IUCN
- The third listed species, *Dactylorhiza hatagirea* (Salampanja), is threatened by habitat loss, livestock grazing, deforestation, and climate change.
- It is extensively used in Ayurveda, Siddha, Unani, and other alternative systems of

medicine to cure dysentery, gastritis, chronic fever, cough, and stomach aches.

THE HINDU

Trisonic wind tunnel



- The Trisonic Wind Tunnel is a system to aid the aerodynamic design of rockets and re-entry spacecraft by characterizing a scaled model by evaluating forces, moments, load distribution, unsteady pressures, acoustic levels, etc.
- The tunnel has an overall length of about 160m and a maximum cross-section of 5.4m.
- The tunnel can be used for testing various space vehicles in three flight regimes - below the speed of sound, at the speed of sound, and above the speed of sound: hence the name trisonic wind tunnel.
- The tunnel can simulate flight conditions from 0.2 times the speed of sound (68 m/s) to 4 times the speed of sound (1360 m/s).
- The new trisonic wind tunnel at the Vikram Sarabhai Space Centre (VSSC) was inaugurated

- For the country as a whole, it is a big step towards self-reliance in the aerospace sector,
- Wind tunnels are devices used to study the effects of air flows on a solid object.
- In a 'blow down test', stored gases are released and blown through the tunnel's test section, simulating flight conditions.

THE HINDU

Scramjet engine- Hot test vs cold test

- The main difference is that a rocket carries its own supply of oxygen (Oxidizer Tank) for combustion while a jet engine utilizes oxygen from the atmosphere for combustion.
- This makes rocket engines less energy efficient when compared to Jet engines.

Jet Engine

- A jet engine is a machine that converts energy-rich, liquid fuel into a powerful pushing force called thrust.
- The thrust from one or more engines pushes a plane forward, forcing air past its scientifically shaped wings to create an upward force called lift that powers it into the sky.
- A Jet Engine has 3 main processes:

COMPRESSION

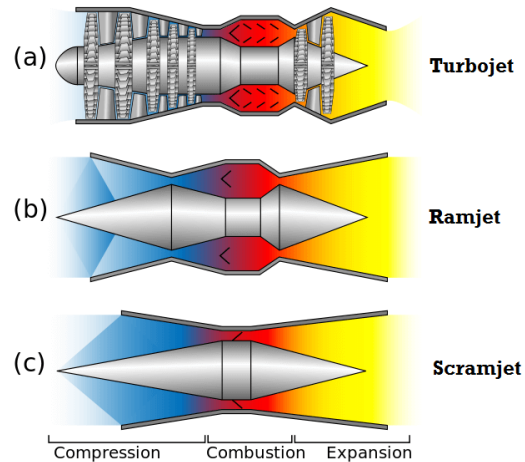
- It increases the pressure of the air trapped inside the chamber.

COMBUSTION

- It increases the temperature of the air-fuel mixture by releasing heat energy from the fuel.

EXHAUST

- It increases the velocity of the exhaust gases, thereby powering the vehicle.



THE HINDU

TURBOJET

- Turbo jet engine is an air-breathing jet engine. This is one of the most common types of jet engines. It is still widely used in airplanes.

TURBOFAN ENGINES

- Turbofans differ from turbojets in the way they have an additional component a fan. The fan sucks in the air and then further gets compressed and combustion takes place in the burner.

RAMJET

- High-speed forward motion is used to compress the air (no compressor).
- Fuel is injected into the combustion chamber where it mixes with the hot compressed air and ignites.
- The average speed of a Ramjet is 3-6 Mach. But the ramjet efficiency starts to drop when the vehicle reaches hypersonic speeds.

SCRAMJET

- Here also, the high-speed forward motion is used to compress the air (no compressor), but it is an improvement over the ramjet engine as it efficiently operates at hypersonic speeds and allows supersonic combustion.
- Speed is greater than 6 Mach (Six times the speed of Sound).

Hot test vs cold test

- A hot test system is a 100% production test used to check all the engine operating parameters as they would function in real-time in an actual vehicle whereas a cold test consists of a leak test, which includes the testing of all cavities and systems that must not leak, such as oil, water, fuel, and air.

Singapore declaration –ILO

- The 17th Asia and the Pacific Regional Meeting of the International Labour Organisation (APRM of ILO) set ten-point priorities of national action for the member countries to deal with the issue of dwindling wages of workers, inflation, and unemployment.
- The “Singapore Declaration”, which was adopted agreed that social dialogue was essential to address labor market challenges and find solutions in crisis situations.
- It urged the governments to ensure labor protection for all through the promotion of freedom of association and the effective recognition of the right to collective bargaining throughout the regions, including for workers in vulnerable situations and workers in the informal economy, as enabling rights for decent work.

- It called for closing gender gaps in the world of work through measures that increase women’s labor force participation, promote equal pay for work of equal value, balance work, and responsibilities, and promote women’s leadership.
- The declaration also urged the governments to strengthen governance frameworks and respect freedom of association to protect the rights of migrant workers.

THE HINDU

G20 as an alternative to UNSC

- The alphabetical rotation of the G-20 presidency has brought India to the right place at the right time, especially when the world is looking for an alternative to the United Nations Security Council (UNSC), which has been paralyzed by the veto.
- Most recently, during the COVID-19 pandemic and the Russian invasion of Ukraine, the UNSC’s credibility hit rock bottom.
- Any reform of the UNSC, particularly the expansion of its permanent membership, will be strongly resisted by the permanent members and a large majority of the General Assembly because it does not benefit anyone except those who aspire to be permanent members.
- A gradual transformation of the G-20 from an economic body to a political body can be initiated on the basis of the Bali Declaration, which constitutes the consensus in the group on the Russia-Ukraine war.
- If the G-20 emerges as a peacemaker in Europe, it will attain legitimacy as a group to promote international peace and

security; it can gradually become an alternative to the UNSC.

- The most important difference will be that no one can prevent its meetings by the use of the veto.
- The legitimization of the G-20 as a global arbiter in international affairs will create a multilateral instrument where all members are equal.
- Though it may take a very long time for it to replace the UNSC, a beginning will have been made in making the UN an effective instrument in stopping wars and building cooperation.

THE HINDU

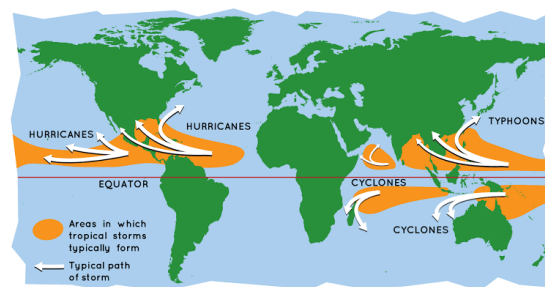
Cyclone mandous

- The cyclonic storm will cross north Tamil Nadu, Puducherry, and adjoining south Andhra Pradesh coasts between Puducherry and Sriharikota.

About the Bay of Bengal Region

- This region of the world has two distinct tropical cyclone seasons - April to June and October to November.
- The conditions will become favorable for the advance of the southwest monsoon over the south Bay of Bengal, Andaman Sea, and Andaman and Nicobar Islands around May 16.
- During the monsoon season, upper-level winds are not favorable for tropical cyclone development.
 - BoB water is warmer than Arabian Sea water,
 - Landlocked- less heat circulation (b) less powerful winds- again lesser heat circulation
 - Fresh water from rivers falls into BoB, (as suggested in and above) making the water a light thin layer, more prone to evaporation

- Easterly jet - causing the windfall in the eastern coastal States of India. And in the Arabian Sea, these winds will steer the windfall toward eastern Africa, not toward the western coast of India.
- On average, five to six significant cyclonic storms emerge in the Bay of Bengal region every year.
- The months of April and May just before the start of the monsoon, and then October to December immediately after the end of the monsoon, are the prime seasons for tropical cyclones.
- A big difference between the strengths of cyclones in April-May and October-December is that the former originate in situ in the Bay of Bengal itself, barely a few hundred kilometers from the landmass.
- On the other hand, cyclones in October-December are usually remnants of cyclonic systems that emerge in the Pacific Ocean but manage to come to the Bay of Bengal, considerably weakened after crossing the Southeast Asian landmass near the South China Sea.



- Cyclones are named as per guidelines decided by the World Meteorological Organisation (WMO). The WMO says that countries in the affected region should name the cyclones.
- In the north Indian Ocean region, eight countries decide the names of cyclonic storms. These countries include India, Bangladesh, Maldives, Myanmar, Oman, Pakistan, Sri Lanka, and Thailand.

- 'Mandous' was a name submitted by WMO member United Arab Emirates and is pronounced as 'Man-Dous.

THE HINDU

GES
REPORTER

Nikshay mitra

- The President has launched the 'Pradhan Mantri TB Mukta Bharat Abhiyan' and announced the Nikshay 2.0 portal to eliminate TB by 2025.

About Ni-kshay Mitras initiative

- The initiative ensures three-pronged support including Nutritional, Additional diagnostic, and Vocational support.
- The program was brought in to fill the critical "community" elements into India's fight towards the Pradhan Mantri TB Mukta Bharat Abhiyan aimed at eliminating TB by 2025.
- The NIKSHA 2.0 portal provides additional patient support to TB patients to take advantage of Corporate Social Responsibility (CSR) opportunities to improve treatment outcomes, enhance community participation and fulfill India's commitment to TB eradication.
- Ni-kshay Mitra (Donor) for this program includes cooperative societies, corporates, elected representatives, individuals, institutions, non-governmental organizations, political parties, and partners who can support by adopting the health facilities (for the individual donor), blocks/urban wards/districts/States for accelerating the response against TB to complement the government efforts.
- The support provided to the patient under this initiative is in addition to the free diagnostics, free drugs, and Ni-Akshay Poshan Yojana provided by the National TB Elimination Programme (NTEP) to all TB patients notified from both the public and the private sector.

G20 Logo – Hornbill

- The logo for India's upcoming G20 presidency was officially unveiled recently at the Hornbill festival in Nagaland.
- This popular festival show, cases the art, culture and cuisine of Nagaland.
- It also brings attention to a family of some of the largest, most magnificent birds in our country.
- The Great Hornbill is found in the Himalayan foothills, the Northeast, and the Western Ghats.
- It is the state bird of Arunachal Pradesh and Kerala.
- With a wingspan of five feet, it presents an awesome (and noisy) spectacle while landing on a perch.
- The wreathed hornbill, the brown hornbill, and the rufous necked hornbill are slightly smaller and only found in Northeast India.
- A great place to spot the oriental pied hornbill is the Rajaji National Park, Uttarakhand.
- The Malabar grey hornbill's loud 'laugh' echoes in the Western Ghats.
- The smallest of the group, the Indian grey hornbill is found all over (except the Thar Desert) and is often spotted in urban settings such as Theosophical Society gardens in Chennai.
- Tall trees preferred Hornbills prefer tall trees for their nests (breast height being 1.5 meters or more).
- There is a mutualism between these birds and the trees where they nest.
- As large fruit-eating birds, hornbills play a vital role in dispersing the seeds of about 80 rainforest trees.
- Some trees, such as the cupcalyx white cedar suffer a 90% decline in seed dispersal

beyond the parent tree when hornbill populations decline, negatively impacting the biodiversity of forests

- Tall trees are the first targets of illegal logging, and so there has been a slow decline in hornbill numbers, as reflected in bird counts.

THE HINDU

CrCoNi

- CrCoNi is a subset of a class of metals called high entropy alloys (HEAs).
- All the alloys in use today contain a high proportion of one element with lower amounts of additional elements added, but HEAs are made of an equal mix of each constituent element.
- These balanced atomic recipes bestow some of these materials with an extraordinarily high combination of strength and ductility when stressed, which together make up what is termed “toughness”.
- The toughness of this material near liquid helium temperatures (20 kelvin, -424 Fahrenheit) is as high as 500 mega Pascal’s square root meters.
- The metal is exceptionally strong and ductile which, in materials science, means highly malleable and impressively strong its strength and ductility improve as it gets colder.

THE HINDU

Americium -241 batteries

- Scientists are developing batteries containing americium-241, a radioactive

isotope that can be extracted from power plants spent fuel.

- Americium -241, a by-product of plutonium decay, has never been used as a fuel.
- The project is funded by the European Space Agency (ESA), which hopes to wean itself off plutonium- powered equipment sourced from international partners.
- Nuclear waste could power space missions to the far reaches of the Solar System places that are too dark for the solar panel.

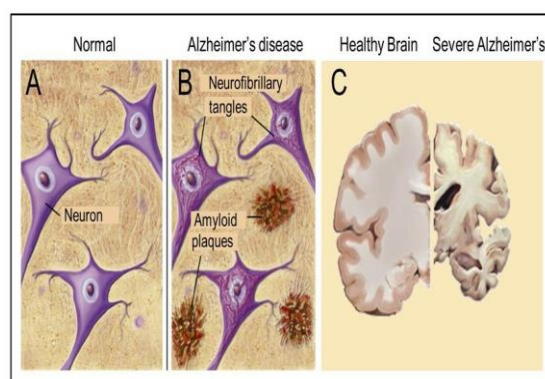
THE HINDU

A DNA

- Two- million- year- old DNA sequences the oldest ever obtained recovered from a 100 -metre -thick deposit of frozen mud and sand in the Northeastern tip of Greenland, shattering the record for ancient- DNA preservation.
- Suggest that the region was once home to mastodons and reindeer that roamed a forested ecosystem unlike any now found on Earth.
- Reindeers were also unheard of in Greenland.

THE HINDU

Lecanemab



- The drug, lecanemab, jointly developed by pharma companies Biogen and Eisai, was tested on patients with early Alzheimer's.
- Results of the study published in the New England Journal of Medicine (NEJM) showed modest effects in arresting the decline of cognitive and functional aspects in patients with early disease.

What is lecanemab?

- Lecanemab belongs to a class of drugs called monoclonal antibodies.
- These antibody-mediated drugs target beta-amyloid, the protein deposition that is seen in patients with Alzheimer's disease, and disrupts cell function.
- "For years amyloid plaques have been thought to be an important target for the treatment of Alzheimer's. This class of drugs does precisely that."

THE HINDU

Section 125 of RPA

- Section 125 in the Representation of the People Act, 1951
- 1[125. Promoting enmity between classes in connection with an election. Any person who in connection with an election under this Act promotes or attempts to promote on grounds of religion, race, caste, community, or language, feelings of enmity or hatred, between different classes of the citizens of India shall be punishable with imprisonment for a term which may extend to three years, or with fine, or with both.]

THE HINDU

China test

- From an operational point of view, the 'China test' consists of three distinct elements.
- First, an assessment of how a certain Indian decision or a specific regional development squares with Chinese regional strategy or interests.
- Second, an assessment of whether India's decision or a certain regional development would require India to make modifications at the level of secondary contradictions.
- And third, an assessment of whether this would require any major policy changes internally.
- Despite its withdrawal from the region, Washington is seeking to re-engage southern Asia (Pakistan, South Asia in general, the Indo-Pacific, and perhaps even the Taliban).
- It appears that one of the lessons New Delhi learned from the standoff with China along the Line of Actual Control in 2020

was that it was perhaps a consequence of India's growing proximity to the U.S.

- The lack of/lukewarm India-U.S. Strategic engagement in the region is precisely what would help Beijing's long- term objectives.
- A China test would suggest that New Delhi should not give into the short- term temptation of not being on the wrong side of China given its long- term implications.
- The U.S. and its allies would like India to stop engaging with Moscow and condemn its aggression against Ukraine which India has refused to do so far.
- In return, there is on offer greater accommodation of Indian interests including perhaps diplomatic and political support against Chinese aggression.
- There is also the growing proximity between Moscow and Beijing which reduces the robustness of India- Russia relations.
- In the absence of an India-Russia relationship, the extent of Sino- Russian cooperation is likely to strengthen.

THE HINDU

Bill to amend the Multistate Cooperative Societies (MSCS) Act, 2002

- The Bill to amend the multistate Cooperative Societies (MSCS) Act, 2002, was introduced in the Lok Sabha.

What are multi- State cooperatives?

- According to the International Cooperative Alliance (ICA), cooperatives are people-centered enterprises jointly owned and democratically controlled by and for their

members to realize common economic, social, and cultural needs and aspirations.

- Multi- State cooperatives are societies that have operations in more than one State, for instance, a farmer producer’s organization that procures grains from farmers from multiple states.
- The board of directors is from all the States these collectives operate in and control all the finances and administration.

What are the issues with the cooperative sector?

- The inclusion of cooperatives in the planning process as development instruments made the sector an avenue for dispensing patronage to the supporters of ruling political parties.
- Moreover, the policy of State governments to contribute to the share capital of the cooperatives enabled governments, “in the name of public interest” to directly intervene in the working of cooperatives which are legally autonomous
- In 1991, the Choudhary Brahm Perkash Committee of the planning commission made far-reaching recommendations to reorganize multistate cooperatives.

What does the Bill seek to change?

- To plug the “loopholes” in the MSCS Act, the Centre introduced a Bill seeking to amend the 2002 law for more “transparency” and “ease of doing business”.
- The amendments have been introduced to improve governance, reform the electoral process, strengthen monitoring mechanisms and enhance transparency and accountability.

- The Bill also seeks to improve the composition of the board and ensure financial discipline, besides enabling the raising of funds in multi- State cooperative societies.
- The Bill provides for the creation of a central Co-operative Election Authority to supervise the electoral functions of the MSCSs.
- The Authority will have a chairperson, vice-chairperson, and up to three members appointed by the Centre.
- It also envisages the creation of a Co-operative Rehabilitation, Reconstruction and Development Fund for the revival of sick multi -State co-operatives societies.
- This fund shall be financed by existing profitable multi -State co-operative societies which will have to deposit either ₹1 crore or 1% of the net profit into the Fund.
- To promote equity and facilitate inclusiveness, provisions relating to the representation of women and Scheduled Caste/Tribe members on the boards of multistate cooperative societies have also been included.

THE HINDU

Laws on religious conversion

- In post -independent India, Odisha became the first State to enact a law restricting religious conversions, which later became a model framework for other states.
- The Himachal Pradesh High Court in 2012 struck down certain provisions of the State’s 2006 law restricting conversions, holding them “unconstitutional”.

- The Court said that the individual converting their faith also enjoyed their right to privacy and the provision to give a month's prior notice to the District Magistrate violated this right.
- In 2021, the Gujarat High Court stayed some provisions of the Gujarat Freedom of Religion Act, 2003, which the State amended in 2021 to add the grounds of marriage to prohibit conversions.
- This year, the Madhya Pradesh High Court also held certain provisions of the MPFRA unconstitutional.
- In November last year, the Allahabad High Court allowed several interfaith couples to register their marriages despite not having sought the DM's approval.

THE HINDU

End-to-end encryption

What is end- to- end encryption?

- End -to- end encryption is a communication process that encrypts data being shared between two devices.
- It prevents third parties like cloud service providers, internet service providers (ISPs), and cybercriminals from accessing data while it is being transferred.
- The process of end- to-end encryption uses an algorithm that transforms standard text into an unreadable format.
- This format can only be unscrambled and read by those with the decryption keys, which are only stored on endpoints and not with any third parties including companies providing the service.
- End -to- end encryption has long been used when transferring business documents,

financial details, legal proceedings, and personal conversations.

- It can also be used to control users' authorization when accessing stored data, which seems to be what Apple intends to do.

Where is it used?

- End -to -end encryption is used to secure communications.
- Some of the popular instant -messaging apps that use it are Signal, WhatsApp, iMessage, and Google messages.
- However, instant messaging is not the only place where user data is protected using end -to- end encryption.
- It is also used to secure passwords, protect stored data and safeguard data on cloud storage.

Why are government agencies unhappy with it?

- The FBI in a statement expressed displeasure at the idea of increasing the use of end -to- end encryption by technology companies.
- It said that while it remains a strong advocate of encryption schemes that give "lawful access by design", that would enable tech companies "served with a legal order" to decrypt data, it "continues to be deeply concerned with the threat end -to- end and user -only- access encryption pose.
- The legislation, according to government agencies was necessary to prevent "terrorists" and other serious criminals from hiding from the law.

THE HINDU

Arth Ganga

- PM first introduced the concept during the first National Ganga Council meeting in Kanpur in 2019, where he urged for a shift from Namami Gange, the Union Government's flagship project to clean the Ganga, to the model of Arth Ganga.
 - The latter focuses on the sustainable development of the Ganga and its surrounding areas, by focusing on economic activities related to the river
 - At its core, the Arth Ganga model seeks to use economics to bridge people with the river.
 - "Strives to contribute at least 3% of the GDP from the Ganga Basin itself," and added that the Arth Ganga project's interventions are in accordance with India's commitments towards the UN sustainable development goals.
- between the stakeholders involved with the river.
 - The model also wants to promote the cultural heritage and tourism of Ganga and its surroundings, through boat tourism, adventure sports, and by conducting yoga activities.
 - Lastly, the model seeks to promote institutional building by empowering local administration for improved water governance.

THE HINDU

Features

- Under Arth Ganga, the government is working on six verticals.
- The first is Zero Budget Natural Farming, which involves chemical-free farming on 10 km on either side of the river, and the promotion of cow dung as fertilizer through the GOBARdhan scheme.
- The Monetization and Reuse of Sludge & Wastewater are the second, which seeks to reuse treated water for irrigation, industries and revenue generation for Urban Local Bodies (ULBs).
- Arth Ganga will also involve Livelihood Generation Opportunities, by creating haats where people can sell local products, medicinal plants and Ayurveda.
- The fourth is to increase public participation by increasing synergies

Executive vs Judiciary

- A major confrontation is on between the Union government and the Supreme Court over the former's resentment towards the Collegium system of appointments and its push to have a dominant say in judicial appointments and transfers.
- The government has also started airing its grievance against the invalidation of the National Judicial Appointments Commission (NJAC) by the court in 2015.
- Law Minister Kiren Rijiju shot a salvo at the Supreme Court Collegium, saying they were "preoccupied" with making judicial appointments when their primary job is delivering justice
- CJ advised that the Collegium and the government should work with a sense of "constitutional statesmanship" rather than find fault with each other.
- December 8, Justice Kaul's Bench said nobody was stopping the government from bringing a new law on judicial appointments, but till then the Collegium system and its Memorandum of Procedure (MoP) was the "final word".
- The Court said that even if a law was enacted in the future, its constitutionality would be duly scrutinized by the Supreme Court.
- The parliamentary standing committee on Law and Personnel led by in its report said both the judiciary and the government need to do some "out-of-the-box" thinking to deal with the "perennial" judicial vacancies in High Courts.
- It said that both institutions were not adhering to the timeline given in the Second Judges case and the MoP.

- The MoP required the Chief Justices of High Courts to initiate the proposals six months prior to vacancies.
- The Constitution (99th Amendment) Act was passed by Parliament to provide for a National Judicial Commission, which was duly formed by the NJAC Act.

What is the MoP and what is its current status?

- The procedure for the appointment of judges to the Supreme Court and the High Courts, in accordance with the Collegium system, was laid down in the MoP prepared in 1998.
- It states that the initiation of a proposal for the appointment of Supreme Court judges vested with the CJ and that of High Court judges with the Chief Justice of the High Courts concerned.
- On October 12, 2015, the court struck down the NJAC Act and the Constitution Amendment which sought to give politicians and civil society a final say in the appointment of judges to the highest courts.

What are the government's grievances?

- The Centre argues that the Collegiums, both at the Supreme Court and High Court levels, are delaying judicial appointments.
- The NJAC was a good law thwarted by the court. It says that the High Courts are not making recommendations six months in advance of a vacancy.
- As on November 30, 2022, there are 332 judicial vacancies in the High Courts out of a total sanctioned strength of 1,108 judges.

- The High Courts have made 146 (44%) recommendations which are under consideration of the government and the Supreme Court.
- The High Courts are required to make recommendations for the remaining 186 vacancies (56%).

What is the SC's response?

- The court said the Collegium system, combined with the MoP, is the law as it exists now.
- The government has either kept Collegium recommendations pending for no apparent reason or it has repeatedly sent back names reiterated by the Collegium.
- The court accused the government of not appointing persons who are not "palatable" to it.
- Women running for elections face numerous challenges, it is essential to create a level playing field through appropriate legal measures.
- The establishment of quotas for women is an obvious answer.
- Mandated reservation for women in gram panchayats was established in all major States since the mid-1990s.
- Attempts have also been made to extend quotas for women in the Lok Sabha and State Assemblies through a Women's Reservation Bill.
- There is substantial evidence showing that increased female representation in policymaking goes a long way in improving perceptions about female effectiveness in leadership roles.
- This decreases the bias among voters against women candidates and results in a subsequent increase in the percentage of

female politicians contesting and winning elections.

THE HINDU

National policy on rare diseases

- A rare disease is a health condition of low prevalence that affects a small number of people compared with other prevalent diseases in the general population.
- It is estimated that globally around 6000 to 8000 rare diseases exist with new rare diseases being reported in the medical literature regularly.
- Generally accepted international research is between 6% and 8%. Rare diseases include genetic diseases, rare cancers, infectious tropical diseases and degenerative diseases.
- 80% of rare diseases are genetic in origin and hence disproportionately impact children.
- There is no universally accepted definition of a rare disease.
- Different countries define rare diseases differently.
- Rare diseases constitute significant economic burden independent of a country's size and demographics, arising from increased healthcare spending.
- As resources are limited, there is a macroeconomic

allocation dilemma due to opportunity cost of funding rare disease treatment: on one hand, health problems of much larger number of persons can be addressed by allocating a relatively smaller amount, on the other, much greater resources will be required for addressing health problems of a relatively smaller number of persons.

THE HINDU

National Policy for Rare Diseases (NPRD), 2021

- The Government has launched National Policy for Rare Diseases (NPRD), 2021 in March 2021 for the treatment of rare disease patients. The salient features of NPRD, 2021 are as under:
- The rare diseases have been identified and categorized into 3 groups namely Group 1, Group 2, and Group 3.
- Group-2: Diseases requiring long-term/lifelong treatment having a relatively lower cost of treatment and benefit have been documented in the literature and annual or more frequent surveillance is required.
- Group 3:- Diseases for which definitive treatment is available but challenges are to make the optimal patient selection for benefit, very high cost, and lifelong therapy.
- Provision for financial support of up to Rs. 50 lakhs to the patients suffering from any category of Rare Diseases and for treatment in any of the Centre of

Excellence (CoE) mentioned in NPRD-2021, outside the Umbrella Scheme of Rashtriya Arogaya Nidhi.

- In order to receive financial assistance for the treatment of rare diseases, the patient of the nearby area may approach the nearest Centre of Excellence to get him assessed and avail of the benefits.
- Eight (08) Centres of Excellence (CoEs) have been identified for the diagnosis, prevention, and treatment of rare diseases.
- Five Nidan Kendras have been set up for genetic testing and counselling services.
- The NPRD, 2021 has provisions for promotion of research and development for diagnosis and treatment of rare diseases;
- Promotion of local development and manufacture of drugs and creation of conducive environment for indigenous manufacturing of drugs for rare diseases at affordable prices.

THE HINDU

Big tech and anti-competition law

- The Indian anti-trust body, the Competition Commission of India (CCI)'s move, in October, to impose a penalty of ₹1,337.76 crores on Google for abusing its dominant position in the android mobile device ecosystem.
- When India established the CCI under the Indian Competition Act 2002, it was to protect and promote competition in markets, and prevent practices that hinder competition.

- However, it did not account for the network effect of Big Tech companies as a force to reckon with.
- As their market dominance increased rather exponentially, the European Union, the United States, and even Australia realised their market- distorting abilities and moved to transform their competition law.
- The EU's Digital Market Act and "gatekeepers" who will enforce rules and regulations ex-ante to foresee anti-competitive practices is an examples.
- The Government's Open Network for Digital Commerce (ONDC) platform is a reliable option for these small players
- Use of data, issue of consumer protection
- While the data economy has evolved, we have not dealt with its regulation as effectively.
- There is sensitive data stored on these platforms (financial records, phone location, and medical history).
- Big corporations have asserted ownership of the right to use or transfer this data without restriction.

Market dominance issue

- As the CCI says, the intent of Google's business was to make users on its platforms abide by its revenue-earning service, i.e., an online search to directly affect the sale of their online advertising services.
- Thus, network effects, along with a status quo bias, created significant entry barriers for competitors to enter or operate in the markets concerned.
- While the competition laws address that anomaly, they are too slow to respond in complex technical sectors.
- By the time an order is passed, the dominant player has gained an edge as in the case of Google.
- Thus, in this context, there is an urgent need for ex-ante legislation to prevent market failures and mitigate possible anti-competitive conduct.
- Thus pricing plays a fundamental role in defining the position of any digital platform in the marketplace. It is essential to establish an ex-ante framework to ensure a level playing field for local sellers.
- Predatory pricing entails the lowering of prices that forces other firms to be out-competed.
- Amazon and Flipkart were accused of deep discounting and creating in-house brands to compete with local sellers.
- Only recently, the CCI raided their offices in an anti-competition probe, leading to Amazon being forced to cut its ties with Cludtail.
- While one might attribute it to efficiency barriers, the greed for data is a motivation.
- Further, the storage and collection of women's and children's data need to be dealt with more cautiously to build a safe digital place.
- Finally, market distortion can also lead to poorer quality of services, data monopoly, and stifle innovation.
- For a consumer, there is a need to establish harmony of the Competition law with the new Consumer Protection Act 2020 and e-commerce rules.
- The new law should include a mechanism to ensure fair compensation for consumers who face the brunt of the anti-competitive practices of the Big Techs

- There is an urgent need to contextualise the law to the digital marketplace and devise new provisions with adequate ex-ante legislation.
- The EU has already noted this need through the Digital Markets Act.
- It is time that similar legislation is adopted in India. It is equally important to contextualize India's reality
- Kirana stores competing with -retailers such as Big Basket is an example of unfair competition between legacy businesses and their digital counterparts.

THE HINDU

IR HEADLINES

- Chinese hospitals caught off-guard as COVID cases surge after opening
- Iran publicly carries out second protest execution
- 3 killed in attack on Kabul hotel popular with Chinese
- Protests against the ouster of Castillo turn violent in Peru; new President proposes moving up elections.

THE HINDU

Economy Headlines

- Oct. industrial output contracts 4%, slide seen a second time in 3 months
- Net direct tax revenue growth accelerated to 24.3% by November
- India imported coal worth ₹2.3 lakh crore in April- September.

THE HINDU



• +-

GES
REPORTER



OIC

What is the OIC?

- The OIC claims to be the “collective voice of the Muslim world”. It was established at a 1969 summit in Rabat (Morocco) after what it describes as the ‘criminal arson’ of the Al-Aqsa Mosque in the disputed city of Jerusalem.
- It endeavors to establish solidarity among member states, support restoration of complete sovereignty and territorial integrity of any member state under occupation; protect, defend and combat defamation of Islam, prevent growing dissension in Muslim societies and work to ensure that member states take a united stand at the UN General Assembly, Human Rights Council and other international fora.
- The OIC has consultative and cooperative relations with the UN and other inter-governmental organizations to protect the interest of Muslims, and settle conflicts and disputes involving member states, among them being the territorial conflict between Armenia and Azerbaijan and the status of Jammu & Kashmir.
- Presently based in Jeddah, the organization plans to permanently move its headquarters to East Jerusalem once the disputed city is ‘liberated’.

How does the OIC function?

- The Islamic Summit, composed of Kings and heads of state, is the supreme authority of the organization.
- Convening every two years, it deliberates, takes policy decisions, provides guidance on issues relevant to the organization, and considers issues of concern to the member states.

- The Council of Foreign Ministers is the chief decision-making body and meets annually to decide on how to implement the OIC’s general policies. In addition, this council also appoints, for a period of five years, the Secretary-General, who is the chief administrative officer of the grouping.
- The Secretary-General follows up on the implementation of the decisions, directs attention to competent organs’ specific issues of concern, creates a channel for coordination among the varied organs, and submits annual reports on the work undertaken.
- UN members with a Muslim majority can join the organization. The membership is to be ratified with full consensus at the OIC’s Council of Foreign Ministers.
- The OIC is financed by the member states proportionate to their national incomes.

THE HINDU

CRITICISM OF THE CONSERVATION BILL

- The need for criminal laws to assist wildlife conservation has remained unchallenged since its conception.
- From regulated hunting to complete prohibition and the creation of ‘Protected Areas (PA)’ where conservation can be undertaken without the interference of local forest -dwelling communities, State and Forest Department control over forests.
- The recent move to increase penalties by four times for general violations (from ₹25,000 to ₹1, 00,000) and from ₹10,000 to ₹25,000 for animals receiving the most protection should raise questions about the nature of policing that the WPA engenders.

- Hunting offenses that were primarily filed against Schedule III and IV animals (wild boars) which have lesser protection than tigers and elephants formed over 17.47% of the animals 'hunted' in 2016-20.
- Among the animals hunted the highest, only one in top five belonged to Schedule I (peacock).
- Surprisingly, fish (only certain species relegated to Schedule I) formed over 8% of the cases filed.
- A whopping 133 cases pertaining to fishing (incorrectly classified as Schedule V species) were filed in the last decade in Madhya Pradesh.
- Forest rights, individual and collective, as part of the Forest Rights Act (FRA) were put in place to correct the injustice meted out by forest governance laws in recognizing forest- dependent livelihoods.
- The natural overlap of recognizing forest rights in intended- as -inviolate PAs was quickly resolved by making the FRA subservient to the WPA, thereby impeding its implementation.
- Recent data from the Annual Survey of Industries for 2019-20 shows that the rural segment is a significant contributor to the manufacturing sector's output.
- While 42% of factories are in rural areas, 62% of fixed capital is in the rural side.
- This is the result of a steady stream of investments in rural locations over the last two decades. Several causes for the relatively steady rise and presence of rural manufacturing.
- Rural areas have generally been more attractive to manufacturing firms because wages, property, and land costs are all lower than in most metropolitan areas.
- Locations get more urbanized and congested, the greater these space constraints are.
- In cities, factories just cannot be expanded as opposed to rural areas.
- Thus, increased capital intensity of production is one reason for this trend.
- Many firms experience substantially higher operating costs in cities than in rural areas, with inevitable consequences for the firm's profitability and competitiveness.

THE HINDU

RISE OF RURAL MANUFACTURING

- There is growing evidence to suggest that the most conspicuous trend in the manufacturing sector in India has been a shift of manufacturing activity and employment from bigger cities to smaller towns and rural areas.
- This 'urban- rural manufacturing shift' has often been interpreted as a mixed bag, as it has its share of advantages that could transform the rural economy, as well as a set of constraints, which could hamper higher growth

- Big firms deliberately shift production from cities to take advantage of the availability of less skilled, less unionized, and less costly rural labor.
- The shift in manufacturing activities from urban to rural areas has helped maintain the importance of manufacturing as a source of livelihood diversification in rural India.

CHALLENGES AHEAD

- The shift towards rural manufacturing faces two major challenges.
- First, though firms reap the benefits of lower costs via lower rents, the cost of capital seems to be higher for firms operating on the rural side.

- This is evident from the shares in rent and interest paid.
- Second, there exists an issue of “skills shortage” in rural areas as manufacturing now needs higher-skilled workers to compete in the highly the second-largest global ‘new economy.

THE HINDU

CHINA VS USA

- China rose to the status of the second-largest economy and got itself ingrained into the global economy.
- This eventually translated into China’s growing economic competence as well as its rising political ambition and might.
- China then started to systematically undermine U.S. global dominance through military and diplomatic means.
- The administration’s imposition of tariffs on China’s exports turned into a “trade war” which started to reverse the trajectory of U.S.-China relations.
- China’s crackdown in Xinjiang and Hong Kong, its “wolf warrior diplomacy” during the COVID-19 blame game, its evident support to Russia during the Ukraine crisis, and its escalating offensive posturing towards Taiwan made it imperative for the U.S. to continue with a confrontational posture towards China.
- The year 2022 witnessed the relations descend into an abysmal trajectory with the Speaker of the U.S. House of Representatives, Nancy Pelosi visiting Taiwan
- In order to undercut China’s growing technological prowess, the U.S. imposed a series of restrictions on China targeting its semiconductor chip industry.

- China has not moved away from its path to attain its long-term goal of centrality in the international system.
- In fact, Xi Jinping has at multiple times underlined China’s time-bound aspiration to achieve such a goal through phased modernization of the country. China’s more specific objectives like the reunification of Taiwan with the mainland.
- On the other hand, the Biden administration has continued intensifying the U.S.’s rivalry with China by expanding it beyond trade and into avenues like technology and political freedoms.
- It has also utilized multilateral approaches like strengthening the Quad in the Indo-Pacific, and the founding of the Indo-Pacific Economic Framework.

THE HINDU

6th SCHEDULE

- The sixth schedule contains provisions related to the Administration of Tribal Areas in the States of Assam, Meghalaya, Tripura, and Mizoram.
- The Sixth Schedule provides for the administration of certain tribal areas as autonomous entities.
- The provisions of the sixth schedule are provided under Articles 244(2) and 275(1) of the Indian Constitution.
- The tribal areas in the four states of Assam, Meghalaya, Tripura, and Mizoram have been constituted as autonomous districts. But, they do not fall outside the executive authority of the state concerned.
- If there are different tribes in an autonomous district, the governor can divide the district into several autonomous regions.
- Each Autonomous District shall have a District Council consisting of not more than

thirty members, out of which four are nominated by the Governor while the rest are elected on the basis of adult franchise.

- The elected members hold office for a term of five years (unless the council is dissolved earlier) and nominated members hold office at the pleasure of the governor.
- Each autonomous region also has a separate regional council.
- The Sixth Schedule has provision for the creation of Autonomous District Councils, and Regional Councils endowed with certain legislative, executive, judicial, and financial powers.
- However, the administrative powers and functions of these District Council and Regional Council differ from State to State.
- One of the most important features of the Sixth Schedule is the empowerment of District Councils to make laws.
- They can make laws on certain specified matters like land, forests, canal water, shifting cultivation, village administration, inheritance of property, marriage, divorce, social customs, and so on.
- The District and Regional Councils are also empowered to constitute Village and District Council Courts for the trial of suits and cases where all parties to the dispute belong to Scheduled Tribes within the district.
- And no other courts except the High Courts and the Supreme Court have jurisdiction over such suits or cases of the Council Courts.

THE HINDU

ASSAM ACCORD

What is Assam Accord?

- The Assam Accord (1985) was a Memorandum of Settlement (MoS) signed

between representatives of the Government of India and the leaders of the Assam Movement in New Delhi on 15 August 1985.

- The accord brought an end to the Assam Agitation and paved the way for the leaders of the agitation to form a political party and form a government in the state of Assam soon after.
- Some of the key demands were All those foreigners who had entered Assam between 1951 and 1961 were to be given full citizenship, including the right to vote.
- Those who had done so after 1971 were to be deported; the entrants between 1961 and 1971 were to be denied voting rights for ten years but would enjoy all other rights of citizenship.
- A parallel package for the economic development of Assam, including a second oil refinery, a paper mill, and an institute of technology, was also worked out.
- The central government also promised to provide 'legislative and administrative safeguards to protect the cultural, social, and linguistic identity and heritage of the Assamese people.

THE HINDU

URU

- The District Tourism Promotion Council, Kozhikode has applied for a Geographical Indication (GI) tag for the famous Beypore Uru (boat).
- It is a wooden dhow (ship/sailing boat/sailing vessel) handcrafted by skilled artisans and carpenters in Beypore, Kerala.
- The Urus is purely made of premium wood, without using any modern techniques.
- The wood used to build the Uru is still sawed the traditional way which requires immense expertise.
- It takes one to four years to build each Uru and the entire process is done manually.

THE HINDU

Long-Term Low-Carbon Development Strategy

- (LT-LCDS) and cities Jaipur has also witnessed a significant decline in porous surfaces (by 50%) in the last three decades and a correspondingly sharp increase in storm water run-off (156%) which the city struggles to accommodate leading to regular urban flooding.
- India unveiled its long-term climate action plan at the 27th Conference of the Parties to the United Nations

Framework Convention on Climate Change (COP27), held in Sharm el -Sheikh, Egypt.

- The document titled 'Long-Term Low-Carbon Development Strategy (LT-LCDS)' has multi-sectoral measures to reach a net-zero emissions status, climate-resilient urbanization forms a cornerstone of the Government of India's strategy under the Paris Agreement.
- This three-pronged and long-term plan for urban areas focuses on adaptation and resource efficiency in urban planning, climate-responsive, and climate-resilient buildings, and municipal service delivery
- To facilitate the implementation of the LT-LCDS and other missions, and enable their integration, a data-driven approach may be useful.
- The Urban Sustainability Assessment Framework (USAF), a decision support tool of UN-Habitat for municipal commissioners and urban practitioners, supports the sustainable and resilient urban planning and management of Indian cities.
- It enables cities to regularly capture inter-sectoral data and corresponding analysis on urban metrics,
- By designing 'shared streets' for personal vehicles, public transport,

NMT s (non-motorised) transport, and pedestrians, and linking them with future economic activity zones and underserved areas, the city has immense potential to reduce its carbon footprint.

- These streets can also be conduits for native plant species and groundwater recharge by integrating water -sensitive urban design features.
- Jaipur has also witnessed a significant decline in porous surfaces (by 50%) in the last three decades and a corresponding sharp increase in surface storm water run-off (156%) which the city struggles to accommodate leading to regular urban flooding.
- Simple yet effective solutions that can increase Jaipur's resilience include community recharge pits in neighbourhood parks, and increasing permeable spaces along mobility corridors to decrease the run-off by a sizeable fraction.
- Active involvement from various tiers of government, non-governmental, community-based organizations, and academic institutions is desirable at each step from building a sustainability profile to arriving at very specific interventions.

• **THE HINDU**

Base editing

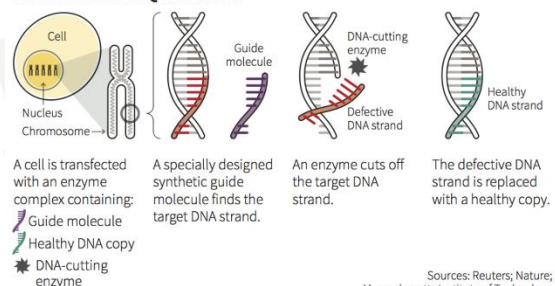
- Scientists in the United Kingdom testing a new form of cancer therapy, reported success in a teenaged girl, Alyssia, with a form of cancer called T- cell acute lymphoblastic leukaemia.



DNA editing

A DNA editing technique, called CRISPR/Cas9, works like a biological version of a word-processing programme's "find and replace" function.

HOW THE TECHNIQUE WORKS



What happens in this form of cancer?

- In this form of blood cancer, the T-cells, which are a class of white blood cells, are equipped to hunt and neutralize threats to the body, turn against the body and end up destroying healthy cells that normally help with immunity.

What is 'base editing?'

- A person's genetic code is several permutations of four bases: Adenine (A), Guanine (G), cytosine (C), and thymine (T).
- Sequences of these bases, akin to letters in the alphabet, spell out genes that are instructions to produce the wide array of proteins necessary for the body's functions.
- In the last two decades, the world of biomedical engineering has been enthused by a technique that allows genes to be altered and errors 'fixed.'
- The most popular among these approaches has been the CRISPR-cas9 system.
- The CRISPR -cas 9 system, consists of an enzyme that acts like molecular scissors.
- It can be made to cut a piece of DNA at a precise location and a guide RNA can be used to insert a changed genetic code at the sites of the incision.
- While there are a few ways to effect such changes, the CRISPR-Cas9 system is believed to be the fast, most versatile system to effect such gene editing.

Export slowdown

- India's exports declined about 16.7% in October compared with the year-earlier period.

How is the export sector faring?

- Engineering goods, which have lent a strong shoulder to India's goods exports in recent years, slid 21%.
- Attributed the slowdown to high inflation in developed regions, falling demand in China, slowdown in the EU and the U.S., and the Russia-Ukraine war
- The report states that the global slowdown is driven by a 'confluence of stubbornly high inflation, rising borrowing costs and geopolitical tensions', but cites local demand as being 'resilient'.
- It also expects a 're-invigorated' investment cycle which will spur growth and job creation in the coming days.
- One seemingly positive signal for the economy is the private sector capital expenditure
- Private Capex typically depends on credit, or loans, from the banking system. And that has seen healthy growth in the recent past touching a high of 18% last month.

USA space force in South Korea

- The U.S. military formally launched a space force unit in South Korea, a move that will likely enable Washington to better monitor its rivals North Korea, China, and Russia.
- The activation of the U.S. Space Forces Korea at Osan Air Base near Seoul came after North Korea test-fired a barrage of nuclear-capable ballistic missiles designed to strike the U.S. mainland and its allies South Korea and Japan in recent months.
- The unit belongs to the U.S. Space Force, which was launched in December 2019.
- The Space Force was seen soberly as an affirmation of the need to more effectively organize for the defense of U.S. interests in space especially satellites used for civilian and military navigation, intelligence and communication.

THE HINDU

Kerala university (amendment) bill

- The Kerala government has passed the two University Laws (Amendment) Bills in the State Assembly to amend laws relating to the governance of State universities and to remove Governor Arif Mohammed Khan as the Chancellor of said universities.

What do the Bills say?

- The proposed legislation will amend the statutes of 14 universities established by legislative Acts in Kerala and remove the Governor as the Chancellor.
- The Bills will give the government power to appoint eminent academicians as Chancellors of various universities, thus ending the Governor's watchdog role in university administration.
- The Bills also provide provisions to limit the term of the appointed chancellor to five years.

Why is the State government amending University laws?

- The Minister for Law, P. Rajeev, while tabling the Bills, pointed out that the UGC guidelines, which earlier used to be considered mandatory for Central universities

and “partially mandatory and partially directive” for State universities, had been made legally binding for all universities by way of recent rulings by the Supreme Court.

- “Worryingly, such precedence pointed towards a scenario in which the legislative powers of the Assembly on all subjects on the Concurrent List (of the Constitution) could be undermined through a subordinate legislation or an executive order issued by the Centre,”
- Moreover, the State government has claimed the recommendation of the Punchhi Commission on Centre-State Relations to refrain from “burdening the Governor with positions and powers which are not envisaged by the Constitution and which may lead the office to controversies or public criticism” as the rationale behind the Bills.

What are the arguments against the Bill?

- As described above, the Bills would give the State Government more leeway in appointing its own nominees as VCs of State Universities.
- This would mean a transfer of power over university administration from

the Governor and the UGC to the State Government.

- While both the ruling front and the Opposition seem united in stripping away the Governor's Chancellorship, the Opposition fears that the State Government would try to turn State universities into its fiefdom, leading to the erosion of the autonomy universities enjoy.

THE HINDU

Agni V

- India on successfully test -fired nuclear- capable ballistic missile Agni -V that can strike targets at ranges up to 5,000 km, marking a significant boost to the country's strategic deterrence, people familiar with the development said.
- The test- firing of the missile from the APJ Abdul Kalam Island off Odisha coast comes amid India's lingering border row with China.
- Agni-V can bring almost the entire Asia including the northernmost part of China and regions in Europe under its striking range.

THE HINDU

ABOUT THE AGNI V PROJECT

- The Agni V project is aimed at boosting India's nuclear deterrence

against China, which is known to have missiles like Dongfeng-41 having ranges between 12,000-15,000 km.

- Agni V can bring almost the entire Asia, including the northernmost part of China as well as some regions in Europe, under its striking range.
- The Agni 1 to 4 missiles have ranges from 700 km to 3,500 km and they have already been deployed.
- In June, India successfully carried out a night launch of the nuclear-capable Agni-4 ballistic missile, in a boost to India's military capabilities.

THE HINDU

WB Report on air pollution

- Currently, over 60% of South Asians are exposed to an average 35 g/m³ of PM_{2.5} annually.
- In some parts of the Indo -Gangetic Plain (IGP) it spiked to as much as 100 g/m³ nearly 20 times the upper limit of 5 g/m³ recommended by the World Health Organisation, says the World Bank report.
- The six major airshed in South Asia where air quality in one affected the other were: West/Central IGP that included Punjab (Pakistan), Punjab (India), Haryana, part of Rajasthan, Chandigarh, Delhi, Uttar Pradesh;

Central/ Eastern IGP: Bihar, West Bengal, Jharkhand, Bangladesh;

- Middle India: Odisha/Chhattisgarh; Middle India: Eastern Gujarat/Western Maharashtra;
- Northern/Central Indus River Plain: Pakistan, part of Afghanistan; and Southern Indus Plain and further west: South Pakistan, Western Afghanistan extending into Eastern Iran.
- When the wind direction was predominantly northwest to the southeast, 30% of the air pollution in Indian Punjab came from the Punjab Province in Pakistan and, on average, 30% of the air pollution in the largest cities of Bangladesh (Dhaka, Chittagong, and Khulna) originated in India.
- In some years, substantial pollution flowed in the other direction across borders.
- What this means is that even if Delhi National Capital Territory were to fully implement all air pollution control measures by 2030 while other parts of South Asia continued to follow current policies, it wouldn't keep pollution exposure below 35 g/m³.
- However, if other parts of South Asia also adopted all feasible measures it would bring pollution below that number.

Indo pacific

CHINA ON INDO PACIFIC

- There “is no such concept as Indo-Pacific” which was “created by the United States” to bring in partners such as India to “contain” China.
- “The U.S. Indo-Pacific strategy is becoming a byword for bloc politics,”
- “It professes a desire for international cooperation, but in reality is stoking regional rivalry.
- From Five Eyes and Quad to AUKUS... The real goal of the Indo-Pacific strategy is to establish an Indo-Pacific version of NATO.
- “Five Eyes” intelligence alliance involving Australia, New Zealand, Canada, the U.S. and U.K., and the AUKUS (Australia-U.K.- U.S.) defense pact.
- The Five Eyes (FVEY) is an intelligence alliance comprising Australia, Canada, New Zealand, the United Kingdom, and the United States.
- These countries are parties to the multilateral UKUSA Agreement, a treaty for joint cooperation in signals intelligence.
- Informally, Five Eyes can also refer to the group of intelligence agencies in these countries.

- The origins of the FVEY can be traced to informal secret meetings during World War II between British and American code-breakers, which started before the U.S. formally entered the war.
- UN Women supports UN Member States as they set global standards for achieving gender equality, and works with governments and civil society to design laws, policies, programmes and services needed to ensure that the standards are effectively implemented and truly benefit women and girls worldwide.

INDIA VIEW

- India has strongly pushed back against China's invoking of NATO as a comparison, and pointed to the fact that India is not a U.S. ally and the Quad was not a military alliance.
- Indian officials have also rejected China's argument that the U.S. was "stoking" recent tensions in India-China relations, which New Delhi attributes to Beijing's aggressive posture along the Line of Actual Control.
- It works globally to make the vision of the Sustainable Development Goals a reality for women and girls and stands behind women's equal participation in all aspects of life, focusing on four strategic priorities:
 - Women lead, participate in and benefit equally from governance systems
 - Women have income security, decent work and economic autonomy
 - All women and girls live a life free from all forms of violence
 - Women and girls contribute to and have greater influence in building sustainable peace and resilience, and benefit equally from the prevention of natural disasters and conflicts and humanitarian action.

THE HINDU

UN WOMEN

- Iran accused the United States of orchestrating its removal from a UN women's rights body over its response to protests triggered.
- UN Women is the United Nations entity dedicated to gender equality and the empowerment of women. A global champion for women and girls, UN Women was established to accelerate progress on meeting their needs worldwide.
- The federal funds rate is the rate banks charge each other for lending their excess reserves or cash. Some banks have excess cash, while other

How fed rate works?

banks might have short-term liquidity needs.

- The fed funds rate is a target rate set by the Federal Reserve Bank and is usually the basis for the rate that commercial banks lend to each other.
- However, the fed funds rate has a far more sweeping impact on the economy as a whole.
- The fed funds rate is a key tenet of interest rate markets and is used to set the prime rate, which is the rate banks charge their clients for loans.
- Also, mortgage and loan rates, as well as deposit rates for savings, are impacted by any changes in the fed funds rate.
- The Fed, through the FOMC or Federal Open Market Committee, adjusts rates depending on the economy's needs.
- If the FOMC believes the economy is growing too quickly, and it's likely that inflation or rising prices might occur, the FOMC will increase the fed funds rate.
- Conversely, if the FOMC believes that the economy is struggling or might dip into a recession, the FOMC would lower the fed funds rate.
- Higher rates tend to slow lending and the economy, while lower rates tend to spur lending and economic growth.

Five agriculture products get GI TAG

- Five agricultural products of Kerala have been granted Geographical Indication (GI) status.
- Attappady Attukombu Avara (beans), Attappady Thuvara (red gram), Onattukara Ellu (sesame), Kanthalloor-Vattavada Veluthulli (garlic), and Kodungalloor Pottuvellari (snap melon) are the latest Geographical Indications that have been registered.
- The unique features of the products, imparted by the agro-climatic conditions of the geographical area of their production, are the basis for getting the Geographical Indication tag.
- Attappady Attukombu Avara, cultivated in the Attappady region of Palakkad, is curved like a goat's horn as its name indicates.
- Its higher anthocyanin content, compared to other dolichos beans, imparts a violet color in the stem and fruits.
- Attappady Thuvara has seeds with white coats.
- These are bigger and have higher seed weights than the regular variety.
- Compared to the garlic produced in other areas, the garlic from the

Kanthalloor- Vattavada area of Devikulam block panchayat in Idukki contains a higher amount of sulfides, flavonoids, and proteins.

- Onattukara Ellu and its oil are famous for its unique health benefits.
- Relatively higher antioxidant content in Onattukara Ellu helps in fighting the free radicals which destroy the body cells.
- Kodungalloor Pottuvellari cultivated in Kodungalloor and parts of Ernakulam are consumed as juice and in other forms.
- This snap melon, which is harvested in summer, is excellent for quenching thirst.

THE HINDU

How ST LIST Updated

- The Hatti tribe in the Trans-Giri area of Sirmour district in Himachal Pradesh, the Narikoravan and Kurivikkaran hill tribes of Tamil Nadu, and the Binjhia in Chhattisgarh, who were listed as ST in Jharkhand and Odisha but not in Chhattisgarh, were the communities newly added to the list.
- The Tribal Affairs Minister explained that the process to include tribes in the ST list begins with the recommendation from the

respective State governments, which are then sent to the Tribal Affairs Ministry, which reviews and sends them to the Registrar General of India for approval.

- This is followed by the National Commission for Scheduled Tribes' approval before the list is sent to the Cabinet for a final decision
- The National Commission for Scheduled Tribes (NCST)
- The National Commission for Scheduled Tribes (NCST) was established by amending Article 338 and inserting a new Article 338A in the Constitution.
- By this amendment, the erstwhile National Commission for Scheduled Castes and Scheduled Tribes was replaced by two separate Commissions namely- (i) the National Commission for Scheduled Castes (NCSC), and (ii) the National Commission for Scheduled Tribes (NCST) w.e.f. 19 February 2004.
- The term of office of the Chairperson, Vice-Chairperson, and each member is three years from the date of assumption of charge.
- The Chairperson has been given the rank of Union Cabinet Minister, the Vice-Chairperson that of a Minister of State and other Members have the ranks of a Secretary to the Government of India.

- The first National Commission for Scheduled Tribes (NCST) was constituted in March 2004.

THE HINDU

2500yr old puzzle

- Rishi Rajpopat made the breakthrough by decoding a rule taught by Panini, known as the father of linguistics, and is now encapsulated in his thesis entitled 'In Panini, We Trust: Discovering the Algorithm for Rule Conflict Resolution in the Astadhyay.

THE HINDU

Japan vs china-article 9

- Japan's government approved a major defense policy overhaul, including a significant spending hike, as it warned China poses the "greatest strategic challenge ever" to its security.
- In its largest defense shake-up in decades, Japan vowed to increase security spending to 2% of GDP by 2027, reshape its military command, and acquire new missiles that can strike far-flung enemy launch sites.
- The changes could still be controversial because Japan's post-war Constitution does not officially

recognize the military and limits it to nominally self-defensive capabilities.

- Article 9 of the Japanese Constitution contains a “No war” clause. It came into effect on May 3, 1947, immediately after World War II.
- The text of the article of the Japanese Government formally renounces war as a right of sovereignty and the refusal to settle disputes using military force.

THE HINDU

Osumi and Miyako Strait

- A squadron of Chinese Navy ships sailed through straits near Japan into the Western Pacific, while Beijing blasted Tokyo’s adoption of a new national security strategy putting itself on a more offensive footing.
- The destroyers Lhasa and Kaifeng, and a replenishment ship, sailed through the Osumi Strait while a Dongdiao -class surveillance ship sailed through the Miyako Strait.



SOURCE: REUTERS STRAITS TIMES GRAPHICS

What are destroyer ships?

- In naval terminology, a destroyer is a fast, maneuverable, long-endurance warship intended to escort larger vessels in a fleet, convoy, or battle group and defend them against powerful short-range attackers.
- They were originally developed in 1885 by Fernando Villaamil for the Spanish Navy as a defense against torpedo boats,



THE HINDU

Current account deficit

- A windfall tax is a tax levied by governments against certain industries when economic conditions allow those industries to experience significantly above-average profits
- The purpose is to redistribute excess profits in It has already been used by Russia following the imposition of sanctions on Moscow over the Ukraine war.
- The Reserve Bank of India (RBI) set up the mechanism in July.
- The Centre is looking to bring countries short of dollars into the machine one area to raise funds for the greater social good.

THE HINDU

A step towards internalization of Rupees

Internationalization of the rupee

- Internationalization of the rupee is a process that involves increasing the use of the local currency in cross-border transactions.
- It involves promoting the rupee for import and export trade and then other current account transactions followed by its use in capital account transactions.
- Current and Capital accounts are the two components of the Balance of payments.
- While the current account deals mainly with the import and export of goods and services, the capital account is made up of the cross-border movement of capital by way of investments and loans.
- The use of the Rupee in cross-border transactions mitigates currency risk for Indian businesses.
- It reduces the need for holding foreign exchange reserves.
- Reducing dependence on foreign currency makes India less vulnerable to external shocks.
- India's rupee trade settlement mechanism, a means of using rupees instead of dollars and other currencies for international

transactions, is attracting interest from more countries.

- Tajikistan, Cuba, Luxembourg, and Sudan have begun talking to India about using the mechanism.

THE HINDU

GES
REPORTER

Quantum computing

- The allure of quantum computers (QC) is their ability to take advantage of quantum physics to solve problems too complex for conventional computer
- In 2021, the Indian government launched a mission to study quantum technologies with an allocation of ₹8,000 crores; the army opened a quantum research facility in Madhya Pradesh, and the Department of Science and Technology co-launched another facility in Pune.
- Quantum physics describes reality at the subatomic scale, where the objects are particles like electrons.
- Here, you can't pinpoint the location of an electron.
- You can only know that it will be present in some volume of space, with a probability attached to each point.
- Another relevant phenomenon is entanglement.
- When two particles are entangled and then separated by an arbitrary distance (even more than 1,000 km), probing one particle, and thus causing its superposition to collapse, will instantaneously cause the superposition of the other particle to collapse as well.

How would a computer use superposition?

- The qubit is the fundamental unit of a QC. It could be a particle like an electron.
- Some information is directly encoded on the qubit: if the electron's spin is pointing up, it means 1; if the spin is pointing down, it means 0.
- But instead of being either 1 or 0, the information is encoded in a superposition: say, 45% 0 plus 55% 1. This is entirely unlike the two separate states of 0 and 1 and is the third kind of state.
- The qubits are entangled to ensure they work together.
- If one qubit is probed to reveal its state, the states of all entangled qubits will be revealed as well.
- The computer's final output is the state to which all the qubits have collapsed.
- One qubit can encode two states, so a computer with N qubits can encode 2^N states.
- A computer with N transistors can only encode 2^N states.
- Qubits exist in superposition in specific conditions, including very low temperatures (~ 0.01 K), with radiation -shielding and protection against physical shock.

- Tap your finger on the table and the superposition of the qubit sitting on it could collapse.
- Material or electromagnetic defects in the circuitry between qubits could also 'corrupt' their states and bias the eventual result.
- Researchers are yet to build QCs that completely eliminate these disturbances in systems with a few dozen qubits.

THE HINDU

mRNA vaccine and cancer

The story so far:

- The results of a trial of an experimental cancer vaccine built on the mRNA (messenger ribonucleic acid) platform, made by Moderna and MSD (Merck&Co.), have shown promising results.

How does the vaccine work?

- The personalised cancer vaccine uses the same messenger -RNA technology that was used to produce the COVID vaccine.
- It allows the body's immune system to seek and destroy cancerous cells, the mRNA instructs cells that take up the vaccine to produce proteins that may stimulate an immune response against these same proteins when

they are present in intact viruses or tumor cells.”

- The mRNA included in the Pfizer-BioNTech and the Moderna vaccines instructs cells to produce a version of the “spike” protein that studs the surface of SARS-CoV-2, he explains.
- The immune system sees this spike protein as foreign and mobilizes immune cells to produce antibodies to fight off the infection.
- A Reuter's story on the breakthrough study explained that the personalized cancer vaccine works in concert with Merck's Keytruda, to disable a protein called programmed death 1, or PD-1, that helps tumours to evade the immune system.
- Listing out CAR--T cells and bi-specific antibodies among newer cancer therapies, he said both approaches have already produced spectacular results in many cancers.
- While in CAR--T treatment, scientists take the cells of the immune system out, engineer them to target specific cancer, and then put them back in the body to kill cancer cells, bispecific antibodies attach to immune system cells with one arm and cancer cells with the other, thereby bringing powerful immune system killer cells.

Reform in judiciary

- We have difficulty in finding good talent to be appointed as judges of the High Court, but year after year we see the spectacle of large numbers of experienced and fine judges retiring from the High Court because they have reached the age of 62 bringing back retired Supreme Court judges to hear an admission of Special Leave Petitions.
 - Enabling these ad hoc judges to work online from home with minimum support staff is an excellent harness of human and technology resources;
 - it will enable a vast number of cases to be disposed of
 - Lastly, employ mediation. As a method of dispute resolution, it is far superior to litigation in cases where it can be applied.
- intent to cause such gains or not, was construed as criminal misconduct by a public servant.
 - Therefore, even honest officers had to face this cruel law.
 - Thus, if one were to buy laptops from vendor x for a department, and vendor z offered it a few thousand cheaper, one could be hauled up, even without men's rea.
 - This government finally scrapped this provision of the Prevention of Corruption Act, thereby enabling good governance, by allowing officers to act without fear.
 - Third, another possible small step towards good governance is the Digi Locker (an integral part of the India stack) now has more than five billion documents and 100 million users.
 - Likewise, the Union and State governments can set up enterprise Digi Lockers to store all documents that any small or large business is expected to possess (Pan Card, GSTN number, Aadhaar card, bank account details, etc.)
 - Fourth, today no State government or the Government of India has any common portal, through which businesses even get to know fully the extent of the compliance burden which is spread across multiple departments and agencies.

THE HINDU

Good governance

- First, the Modi government (thanks to the stellar work of economist Bibek Debroy) has repealed an estimated 2,000 Acts, statuettes and subordinate legislation which include dozens of Appropriation acts, the Excise Act 1863,
- Second, for 30 years from 1998, any pecuniary benefit to any private parties, without public interest, regardless of whether there was an

- Fifth, the use of technology is critical in engendering good governance.

THE HINDU

Decriminalising of offenses under GST

What has been recommended to decriminalize GST offenses?

- The 48th GST Council meeting has recommended various measures to decriminalize the GST offenses such as raising the minimum threshold of tax amount for launching prosecution under GST from one crore to two crores, except for the offense of issuance of invoices without a supply of goods or services or both, reducing the compounding amount from the present range of 50 to 150% of the tax amount to the range of 25 to 100%, and decriminalizing certain offenses specified under Section 132 of the CGST Act, 2017, such as obstructing or preventing any officer from doing his duties, deliberate tempering of material evidence and failure to supply information.

What will be the impact of decriminalization?

- It is important to recognize that imposing penal provisions in an ambiguous ecosystem significantly

alters how businesses perceive risk and uncertainty, directly impacting their ability to conduct business.

- The law already contains sufficient penalties that serve as a deterrent against tax evasion.
- Investors may be discouraged by the fear of criminal sanctions in small, trivial, and petty matters, even before their engagement in any business activity or investment.

What are the other recommended measures to facilitate trade?

- The Council recommended an amendment in CGST Rules, 2017, along with the issuance of a circular, to prescribe the procedure for filing an application for refund by unregistered buyers in such cases.
- The GST Council in its 47th meeting had also granted in -principle approval for allowing unregistered suppliers and composition taxpayers to make intra-state supply of goods through E- Commerce Operators (ECOs), subject to certain conditions.
- The Council approved the amendments in the GST Act and GST Rules, along with the issuance of relevant notifications, to enable the same.

THE HINDU

CHINA AND DEEPAKE TECHNOLOGY

The story so far:

- The Cyberspace Administration of China, the country's cyberspace watchdog, is rolling out new regulations, to be effective from January 10, to restrict the use of deep synthesis technology and curb disinformation.
- Deep synthesis is defined as the use of technologies, including deep learning and augmented reality, to generate text, images, audio, and video to create virtual scenes.
- One of the most notorious applications of the technology is deep fakes, where synthetic media is used to swap the face or voice of one person for another.
- Deep fakes are getting harder to detect with the advancement of technology.
- It is used to generate celebrity porn videos, produce fake news, and commit financial fraud among other wrongdoings.

What is a deep fake?

- Deep fakes are a compilation of artificial images and audio put together with machine-learning algorithms to spread misinformation and replace a real person's

appearance, voice, or both with similar artificial likenesses or voices.

- It can create people who do not exist and it can fake real people saying and doing things they did not say or do.
- The term deep fake originated in 2017 when an anonymous Reddit user called himself "Deep fakes".

Does this technology disrupt the right to privacy?

- While Canada does not have any regulations to tackle deep fakes, it is in a unique position to lead the initiative to counter deep fakes.
- Within Canada, some of the most cutting-edge AI research is being conducted by the government with a number of domestic and foreign actors.
- Furthermore, Canada is a member and leader in many related multilateral initiatives like the Paris Call for Trust and Security in Cyberspace, the NATO Cooperative Cyber Defence Centre of Excellence, and the Global Partnership on Artificial Intelligence.
- It can use these forums to coordinate with global and domestic actors to create deep fake policies in different areas.

INS MURMUGAO

- India has been focusing on bolstering its maritime capability with a focus on the Indian Ocean in the backdrop of concerns over China's growing forays into the region, considered the backyard of the Indian Navy.
- With a clear focus on indigenization and self-reliance, 42 out of the 44 ships and submarines under construction are being built in the Indian shipyards,
- China is vying for influence in the strategic Indian Ocean region with substantial investments in ports and infrastructure investments in several countries, including Pakistan and Sri Lanka.

About INS Mormugao:

- Named after the historic Goan port city Mormugao, the ship undertook her first sea sortie on 19 December last year when Goa celebrated 60 years of liberation from Portuguese rule.
- INS Mormugao is the second of the four 'Visakhapatnam class destroyers, indigenously designed by the Indian Navy's Warship Design Bureau and constructed by Mazagon Dock Shipbuilders Ltd.
- The majestic ship measuring 163 meters in length and 17 meters in breadth with a displacement of

7,400 tonnes can be regarded as one of the most potent warships to have been constructed in India.

- 70% of the components used in the construction of INS Mormugao are indigenous.
- The ship is propelled by four powerful gas turbines and it is capable of achieving speeds over 30 knots.
- The Navy said the ship is equipped to fight under nuclear, biological, and chemical (NBC) warfare conditions and that it is fitted with a modern surveillance radar that provides target data to the gunnery weapon systems.

THE HINDU

CHINA AND INDIA-NEPAL POWER TRADE

- India- Nepal hydro-power BHUBANESWAR trade is set to become a regional game changer, say officials in Delhi and Kathmandu, pointing to the possibilities of buying power from Nepal and making it available over an electric grid system to consumers in India, Bangladesh and Sri Lanka.
- However, India's opposition to the use of Chinese contractors in the projects is delaying the process.

- With India refusing to purchase power from the project for its grid, Nepal's government has now asked New Delhi to allow a bilateral transmission from the power plant to Bangladesh, which has been willing to buy the power.
- The Upper Tamakoshi plant, which has been operational since 2021, was constructed by a number of contractors chosen through an international tender, including the civil construction by China's Sinohydro and Austria's Andritz Hydro, for the supply of electro-mechanical equipment, and India's KEC International for the 220-kV transmission line and sub-station.
- Situated close to the Nepal border with Tibet, the project on the Tamakoshi River was called "Nepal's Three Gorges dam", given its size and its contribution to making Nepal a power surplus country in the "wet" or rainy season.
- After four years of negotiations, India and Nepal signed a path-breaking Power Trading Agreement (PTA) in 2014, agreeing to the exchange of electricity and cooperation in the hydro-power sector, and Indian companies are involved in developing several Nepali projects.
- In 2021, after the military stand-off at the Line of Actual Control (LAC) over Chinese transgressions, the government issued a number of financial measures on Chinese investment and imports, including the new "Procedure for Approval and Facilitating Import/Export (Cross Border) of Electricity".
- The procedure included clause (6.3(i)) that prohibited trade with power plants that had ownership from a country that shares a "land border" with India but has no bilateral power treaty with India indicating China and Pakistan.

THE HINDU

Lollapalooza Effect

- The term 'Lollapalooza Effect' means a confluence of factors acting together that can lead to either largely positive or negative results.
- The key is that when forces combine, they don't just add up; each force builds off and strengthens the other, creating an explosive effect with a huge result.

THE HINDU

NASA conducts first water survey, SWOT

- A NASA- led international satellite was launched from Southern

California, on a major Earth science project to conduct a comprehensive survey of the world's oceans, lakes, and rivers for the first time.

- Dubbed SWOT (Surface Water and Ocean Topography), the advanced radar satellite is designed to give an unprecedented view of the life-giving fluid covering 70% of the lift shedding new light on the mechanics and consequences of climate change.
- A Falcon 9 rocket, owned and operated by billionaire Elon Musk's commercial launch company SpaceX, was set to lift off from the Vandenberg U.S. Space Force Base, about 170 miles (275 km) northwest of Los Angeles, to carry SWOT into orbit.

THE HINDU

New Biodiversity fund

- There is an urgent need to create a new and dedicated fund to help to develop the countries successfully implement a post-2020 global framework to halt and reverse biodiversity loss, India has said at the U.N. biodiversity conference in Canada's Montreal.
- The country said that the conservation of biodiversity must also be based on common but differentiated responsibilities and respective capabilities (CBDR) as climate change also impacts nature.
- As the 196 parties to the Convention on Biological Diversity (CBD) finalize negotiations for a post-2020 Global Biodiversity Framework (GBF) a new set of goals and targets to halt and reverse biodiversity loss there have been repeated calls for the inclusion of the CBDR principle in finance-related targets.
- So far, the Global Environment Facility which caters to multiple conventions, including the UNFCCC and UN Convention to Combat Desertification, remains the only source of funding for biodiversity conservation.
- At CBD COP15, developing countries have been demanding a new and dedicated biodiversity fund, saying the existing multilateral sources are not up to the task of meeting the requirements of the GBF.
- Differences with rich countries on the matter prompted representatives from developing nations to walk out of crucial financing talks last week.
- India said developing countries bear the burden of implementing the targets for the conservation of biodiversity and, therefore require

funds and technology transfer for this purpose.

- Established as the seventh principle of the Rio Declaration adopted at the Earth Summit in 1992, CBDR is defined as states having common but differentiated responsibilities in view of the different contributions to global environmental degradation.
- However, applying the CBDR principle to biodiversity conservation has not been straightforward as compared to climate negotiations, and there have been repeated disagreements between the global north and south.
- At CBD COP15, the parties are also trying to achieve a consensus on eliminating subsidies that are harmful to the environment, such as subsidies for fossil fuel production, agriculture, forestry and fisheries, by at least \$500 billion annually and using this money for biodiversity conservation.

THE HINDU

Kamikaze drones

What are Kamikaze Drones?

- The UK government previously said "anyone entering the UK illegally" after 1 January 2022 could be sent, with no limit on numbers.
- Rwanda says it can process 1,000 asylum seekers during the trial period but has the capacity for more.
- Under the deal, Rwanda can also ask the UK to take in some of its most vulnerable refugees.
- These are small unmanned aircraft that are packed with explosives that can be flown directly at a tank or a group of troops that are destroyed when it hits the target and explodes.
- They are called Switchblade because their bladelike wings spring out on launch.
- The drones have the capability of going past traditional defenses to strike their targets and also cost a fraction of what their larger counterparts do.
- These small lethal drones are difficult to detect on radar and they can even be programmed to hit targets without human intervention, based on facial recognition.



THE HINDU

Rwanda plan

What is the Rwanda asylum plan?

- The five-year trial will see some asylum seekers who arrive in the UK sent to Rwanda on a one-way ticket, to claim asylum there.
- They may be granted refugee status to stay in Rwanda. If not, they can apply to settle there on other grounds, or seek asylum in a "safe third country".
- The government says it will deter people arriving in the UK through "illegal, dangerous or unnecessary methods", such as on small boats which cross the English Channel.

What is an asylum seeker?

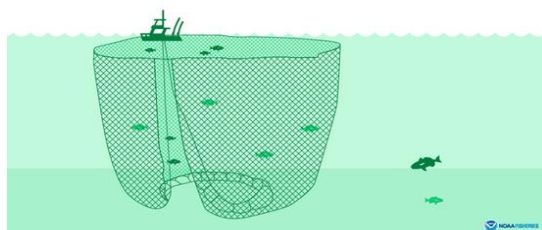
- The UN Refugee Agency defines an asylum seeker as someone who has applied for shelter and protection in another country.

- A refugee is a person who has fled conflict or persecution in their own country.
- The legal rights of refugees are protected by international law. However, it is up to host countries to decide whether an asylum seeker is granted refugee status.

THE HINDU

Purse seine fishing

- Purse seine is a large wall of netting deployed around an entire area or school of fish.
- The seine floats along the top line with a lead line threaded through rings along the bottom.
- Once a school of fish is located, a skiff encircles the school with the net.
- The lead line is then pulled in, "pursing" the net closed on the bottom, preventing fish from escaping by swimming downward.



- Purse seining is a non-selective fishing method that captures everything that it surrounds, including protected species.

- Sea turtles can be captured by a purse seine as it is set and then become entangled in the net mesh as it is hauled in.
- Purse seines can easily encircle marine mammals along with target species as the net is set.

THE HINDU

New biodiversity deal

- Negotiators at a UN biodiversity conference on Monday reached an agreement hailed as a landmark global effort to protect the world's lands and oceans.
- The most significant part of the deal is the commitment to protect 30% of land and water considered important for biodiversity before the end of the decade. Currently, just 17% of terrestrial and 10% of marine areas are protected.
- The agreement comes a day before the United Nations Biodiversity Conference, or COP15, is set to end in Montreal, Canada.

What else does the deal contain?

- The agreement envisages putting \$200 billion (€188 billion) toward supporting biodiversity by 2030, with another \$500 billion to be possibly raised by phasing out or

reforming subsidies, such as those for food or fuel.

- The deal also calls for giving low-income countries far more than is currently provided for their efforts to protect nature. This amount is to reach at least \$20 billion annually by 2025, increasing to \$30 billion by 2030.
- A month after the 27th Conference of the Parties to the UN Framework Convention on Climate Change (COP27) in Egypt, diplomatic retinue went into a contentious huddle again to save the planet in Montreal, Canada, this time, and as the Convention on Biological Diversity (CBD).
- While both these conferences can trace their origins to the Rio summit of 1992, the CBD does not get anywhere near the media attention COP commands.
- Unlike cyclones and melting glaciers that have become visual aids to bring home the climate crisis wrought by invisible gases, biodiversity loss continues to be largely invisible despite its victims being extremely visible.
- Based on current trends, the UN reckons, an estimated 34,000 plant and 5,200 animal species, including one in eight of the world's bird species, face extinction.

- About 30% of breeds of main farm animal species are currently at high risk of extinction.
- Forests are home to much of the known terrestrial biodiversity, but about 45% of the earth's original forests are gone, cleared mostly during the past century
- India, adopting a negotiating tack from climate conferences, has argued that different nations have differing levels of responsibility towards biodiversity conservation (which requires richer nations to be more generous funders of global conservation efforts), it is well known that such demands are a dead end unless countries agree to definite targets.

THE HINDU

The minimum tax on big business

- Members of the European Union last week agreed in principle to implement a minimum tax of 15% on big businesses
- It is estimated that the minimum tax rate would boost global tax revenues by \$150 billion annually.

What is it?

- EU members have agreed to implement a minimum tax rate of 15% on big businesses in accordance

with Pillar 2 of the global tax agreement framed by the Organisation for Economic Cooperation and Development (OECD) last year.

- Under the OECD's plan, governments will be equipped to impose additional taxes in case companies are found to be paying taxes that are considered too low.
- This is to ensure that big businesses with global operations do not benefit by domiciling themselves in tax havens in order to save on taxes. Pillar 1 of the OECD's tax plan, on the other hand, tries to address the question of taxing rights.
- Large multinational companies have traditionally paid taxes in their home countries even though they did most of their business in foreign countries.
- The OECD plan tries to give more taxing rights to the governments of countries where large businesses conduct a substantial amount of their business.
- As a result, large U.S. tech companies may have to pay more taxes to the governments of developing countries.
- What is the need for a global minimum tax?
- Corporate tax rates across the world have been dropping over the last few decades as a result of competition

between governments to spur economic growth through greater private investments.

- The minimum tax proposal is particularly relevant at a time when the fiscal state of governments across the world has deteriorated as seen in the worsening of public debt metrics.

What lies ahead?

- High-tax jurisdictions like the EU are more likely to fully adopt the minimum tax plan as it saves them from having to compete against low-tax jurisdictions.
- Low tax jurisdictions, on the other hand, are likely to resist the OECD's plan unless they are compensated sufficiently in other ways.

What good will the OECD's tax plan do to the global economy?

- Supporters of the OECD's tax plan believe that it will end the global "race to the bottom" and help governments collect the revenues required for social spending.
- Many believe that the plan will also help counter rising global inequality by making it tougher for large businesses to pay low taxes by availing the services of tax havens.

- Critics of the OECD's proposal, however, see the global minimum tax as a threat.
- They argue that without tax competition between governments, the world would be taxed a lot more than it is today, thus adversely affecting global economic growth.

THE HINDU

Carbon market

The story so far:

- The Energy Conservation (Amendment) Bill, 2022 was passed in Parliament.
- The Bill empowers the government to establish carbon markets in India and specify a carbon credit trading scheme.

What are carbon markets?

- Article six of the 2015 Paris Agreement provides for the use of international carbon markets by countries to fulfill their nationally determined contributions (NDC) to keep global warming within 2°C.
- Carbon markets are essentially a tool for putting a price on carbon emissions they establish trading systems where carbon credits or allowances can be bought and sold.
- A carbon credit is a kind of tradable permit that, as per UN standards,

equals one tonne of carbon dioxide removed, reduced, or sequestered from the atmosphere.

- There are broadly two types of carbon markets that exist today compliance markets and voluntary markets.
- Voluntary markets are those in which emitter corporations, private individuals, and others buy carbon credits to offset the emission of one tonne of CO₂ or equivalent greenhouse gas.
- Such carbon credits are created by activities that reduce CO₂ from the air, such as afforestation.
- In a voluntary market, a corporation looking to compensate for its unavoidable emissions purchases carbon credits from an entity engaged in projects that reduce, remove, capture, or avoid emissions.
- For instance, in the aviation sector, airlines may purchase carbon credits to offset the carbon footprint of the flights they operate.
- Compliance markets on the other hand which is set up by policies at the national, regional, and/or international level are officially regulated.

What are the challenges?

- The UNDP points out serious concerns pertaining to carbon

markets ranging from double counting of greenhouse gas reductions, quality, and authenticity of climate projects that generate credits to poor market transparency.

- There are also concerns about 'greenwashing' companies may buy credits, simply offsetting carbon footprints instead of reducing their overall emissions.

What are your concerns about the new Bill?

- The Bill empowers the Centre to specify a carbon credits trading scheme.
- Under the Bill, the central government or an authorized agency will be able to issue carbon credit certificates.
- These carbon credit certificates will be tradeable in nature.
- Other persons would be able to buy carbon credit certificates on a voluntary basis.
- Opposition members pointed out that the Bill does not provide clarity on the mechanism to be used for the trading of carbon credit certificates and about who will regulate such trading
- Members also raised questions about the right Ministry to bring in a scheme of this nature, pointing out that while carbon market schemes in

other countries are framed by their environment ministries, the Indian Bill was tabled by the Power Ministry.

- Another important concern raised is that the Bill does not specify whether certificates under already existing schemes would also be interchangeable and tradeable with carbon credit certificates.
- Two types of tradeable certificates are already issued in India Renewable Energy Certificates (RECs) and Energy Savings Certificates (ESCs).

THE HINDU

Social vs constitutional morality

- Ambedkar divides morality into social morality and constitutional morality.
- He explains that social morality was built through interaction and such interaction was based on the mutual recognition of human beings.
- Yet, under the rigid systems of caste and religion, such interaction was not possible as one did not accept another person as a respectable human being due to their religion or caste background.
- Social morality was based on equality among human beings and a recognition of respect.

- Constitutional morality for Ambedkar was a prerequisite to maintaining a system of democracy in a country.
- He believed that only through a negation of hereditary rule, laws that represented all people, with people's representatives, and a State which has the confidence of the people, can democracy be maintained.
- One single person or political party could not represent the needs or will of all the people.
- Ambedkar realized that the caste system did not go hand in hand with such an understanding of moral democracy.
- This was because the traditional caste structure was of a hierarchical rule, with no mutual respect among individuals, and complete subjugation of one group by another.

THE HINDU

Autonomy of the election commission

- In contemporary times, that understanding is no longer dominant.
- It is now commonly accepted that healthy constitutional democracies need what are known as “fourth branch institutions” (or, alternatively, “integrity institutions”).
- The reason why a “fourth branch” in addition to the legislature, the executive, and the judiciary needs to exist is the following: many of the basic rights and guarantees that we enjoy cannot be effective without an infrastructure of implementation.
- “Fourth branch institutions” need to be functionally independent of the political executive. This is because they are the vehicles for implementing rights against the executive.
- The South African and Kenyan Constitutions have dedicated constitutional provisions for “fourth branch institutions” such as Human Rights Commissions, Election Commissions, and so on, calling these “integrity institutions”, and requiring them to be “independent.
- The Indian Constitution also provides for similar fourth-branch institutions. While the ECI is, obviously, an example, others include the Comptroller and Auditor General, the Public Service Commission(s), and the National Commission for Scheduled Castes.
- The problem, however, is this: while the Constitution goes to some degree to protect the independence of fourth-branch institutions while officials are in office (such as, for example, a high threshold on the removal of an Electoral Commissioner), the power of appointment lies exclusively with the executive.
- In the landmark Vineet Narain case, the Supreme Court likewise held that for the rule of law to prevail, the appointment of the CBI Director would have to be ratified by a three-member body that included the Prime Minister, the Leader of the Opposition, and the Chief Justice of India.

THE HINDU

Indo pacific contestation

- Indian strategic thinking is deeming Beijing as a bigger threat than that Islamabad.
- While the possibility of a two-front war persists, Pakistan’s strategic isolation, economic and political

fallout, and border and terror challenges emanating from Afghanistan have minimized the likelihood of its aggression.

- On the other hand, Beijing's larger strategic and diplomatic presence and grand ambitions have continued to trigger angst for New Delhi.
- In the Maldives, New Delhi is reciprocating President Ibrahim Solih's 'India First' policy with massive economic assistance, grants, and infrastructure projects and also cooperating on maritime security.
- In Nepal, Prime Minister Deuba's government has attempted to improve Nepal's overall bilateral relations with India.
- In crisis-hit Sri Lanka, India, this year alone, has provided economic and humanitarian assistance and investments worth \$4 billion.
- India's leading efforts in South Asia and the Indian Ocean have also attracted other Quad members (Japan, Australia, and the United States).
- Close cooperation has ensued among these partners to collectively push against China and offer genuine alternatives to the BR.
- Japan is also finalizing its talks with Sri Lanka on debt restructuring.

- In the Maldives, Australia and the U.S. have committed to opening their embassies and new areas of cooperation.
- In 2020, the U.S. signed a defense and security framework with the Maldives.
- Earlier this month, the Chinese surveillance vessel Yuan Wang-5 (it had docked in Sri Lanka in August), re-entered the Indian Ocean.
- A similar incident occurred last month when another vessel of the Yuan Wang series entered the Indian Ocean, coinciding with the test flight of the Agni series missile.
- Beijing also hosted its first- ever China Indian Ocean Region Forum, to institutionalize its presence in the region and challenge new initiatives such as the Quad and the Colombo Security Conclave.

THE HINDU

Colombo Security Conclave

- The CSC was formed in 2011 as a trilateral maritime security grouping of India, Sri Lanka, and the Maldives.
- It welcomed Mauritius as a fourth member at the fifth meeting of national security advisers.
- Bangladesh and Seychelles attended as observers and have been invited to join the group.

- The COVID-19 pandemic and Russia's invasion of Ukraine have continued to haunt the region.
- Nepal, the Maldives, and Bhutan are struggling with depleting forex reserves.
- Sri Lanka is yet to chart its way out of the economic crisis. Energy shortages, inflation, and negative or slow economic growth are also disrupting day-to-day activities in these countries.
- The Data Protection Authority of India (DPAI) will exercise excessive control.
- The DPAI will have great independent authority in a regulative area.
- The selection committee consisting of the Chief Justice of India or her nominee, the Cabinet Secretary, and one person with expertise and repute in the data technology field will have tremendous power.

THE HINDU

Criticism of the data protection bill

- A major concern is a provision in the Bill that seeks to deny providing any personal information on administration officials under Section 8(1)(j) of the Right to Information Act,
- This poses a serious problem with the right of privacy-vis-à-vis the right to freedom of speech.
- It will affect the right to freedom of speech and expression guaranteed under Article 19(1) (a) of the Constitution and play havoc with the tenuous balance between freedom of speech and the exceptional restrictions delineated in Article 19(2).

- The unfettered power of the executive over the DPAI only serves to defeat the autonomy of the institution the DPAI also performs adjudicatory functions. The appellate adjudicatory officers are to be appointed by the board members of the DPAI who are solely appointed by the executive member.

THE HINDU

New global biodiversity framework

- Governments, supported by the U.S. and the Vatican, who are not a party to the Convention, adopted the Kunming Montreal Global Biodiversity Framework (GBF) that sets out four goals for 2050, and 23 targets for 2030, to save existing biodiversity and ensure that 30% of degraded terrestrial, inland water,

coastal and marine ecosystems come under effective restoration.

- The CBD states that only about 1.75 million species have so far been identified, including numerous insects, while there may be some 13 million species.

What does the Kunming- Montreal pact aim to achieve?

- It sets out targets for 2030 on protection for degraded areas, resource mobilization for conservation, compensation for countries that preserve biodiversity, halting human activity linked to species extinction, and reducing by half the spread of invasive alien species (introduced plants and animals that affect endemic biodiversity), cutting pollution to non-- harmful levels and minimizing climate change impact and ocean acidification, among others.
- GBF goals and targets do not prohibit the use of biodiversity, but call for sustainable use, and a sharing of benefits from genetic resources.
- Target five specifically states that the use, harvesting, and trade in wild species should be “sustainable, safe and legal, preventing overexploitation, minimizing impacts on non-target species and

ecosystems and reducing the risk of pathogen spillovers...”

- The GBF emphasizes respect for the rights of indigenous communities that traditionally protect forests and biodiversity, and their involvement in conservation efforts.
- It advocates similar roles for women and local communities.
- Agricultural practices also find a strong focus.
- Besides emphasizing sustainable practices in agriculture, aquaculture, fisheries, and forestry, the agreement calls upon members to adopt biodiversity-supporting methods such as agroecology and sustainable intensification.
- This acquires significance, since growing Genetically Modified (GM) crops are not favoured by agroecologists as they could contaminate nearby wild species of the same plants.
- One target also looks at turning cities into hosts of biodiversity, by expanding the area and improving the quality and access to urban green and blue spaces.
- Urban planning should also be biodiversity inclusive, “enhancing native biodiversity, ecological connectivity and integrity, and improving human health and

well-being and connection to nature.”

- Earlier, the CBD had launched the Aichi biodiversity targets for 2020, which included safeguarding all ecosystems that provide services for humanity’s survival, and the Nagoya Protocol which went into effect in 2014 to ensure sharing of biodiversity access and benefits.

What is the roadmap to 2030 and 2050?

- The key aspects of the four GBF goals for 2050 deal with maintaining ecosystem integrity and health to halt extinctions, measuring and valuing ecosystem services provided by biodiversity, sharing monetary and non-monetary gains from genetic resources, and digital sequencing of genetic resources with indigenous people and local communities, and raising resources for all countries to close a biodiversity finance gap of an estimated \$700 billion.
- Recognizing the challenging nature of the goals and targets, the GBF has specific provisions for implementing and monitoring.
- Member nations need to submit a revised and updated national biodiversity strategy and action plan at the conference to be held in 2024.
- Further, the parties to the CBD should submit national reports in 2026 and 2029 to help prepare global reviews.
- Countries would have to review existing laws relating to not just the environment, but areas such as industry, agriculture and land use, to ensure that the national strategy and action plan adequately protects biodiversity.
- For instance, businesses and industries, including transnational corporations would have to assess, monitor, and report the risks and impacts of their operations and portfolios.
- They must provide information for sustainable consumption and comply with the rules on benefit-sharing.
- Perverse incentives that affect biodiversity should be eliminated.
- Indigenous people, local communities, sub-national governments, cities, local authorities, intergovernmental organizations, multilateral environmental agreements, non-governmental organizations, women, youth, research organizations, and the business and finance community have been invited to voluntarily participate in

national biodiversity protection plans.

- There are specific indicators for countries to report their progress, as part of a transparency and reporting arrangement.

What funding arrangements are planned?

- By 2030, the GBF hopes to see at least \$200 billion raised per year from all sources domestic, international, public, and private towards implementation of the national action plans.
- In terms of international funding, developing countries should get at least \$20 billion a year by 2025 and at least \$30 billion by 2030 through contributions from developed countries.
- The Global Environment Facility (GEF), a multilateral body that partners with countries and agencies, has been asked to establish in 2023, and until 2030, a Special Trust Fund to support the implementation of the GBF.
- Complementing this, the GBF envisages that there will be access to justice and information related to biodiversity for indigenous peoples and local communities, respecting their cultures and rights over lands, territories, resources, and traditional

knowledge, as well as by women, children and youth, and persons with disabilities, and ensure the full protection of environmental human rights defenders.

- The GBF is aligned with UN Sustainable Development Goals, three of which directly deal with the environment and thus with biodiversity: Goal 13 on climate action, Goal 14 on life below water, and Goal 15 on life on land.

What are the challenges to protecting biodiversity?

- The major challenge to protecting and expanding biodiversity conservation, says Prof. Partha Dasgupta, is the use of GDP as the chief determinant of development.
- The economist says in the Dasgupta Review report that GDP is based on a faulty application of economics that excludes the “depreciation of assets” like nature which is degraded by the relentless extraction of resources.
- He calls for an appreciation of nature, and measuring “inclusive wealth”, which captures not just financial and produced capital but also human, social, and natural capital.

THE HINDU

Price cap on Russian oil

- The Group of Seven (G7) countries, the European Union, and Australia have imposed a price cap on Russian sea-borne oil to make it harder for Russia to fund its war against Ukraine.
- Under the plan, which took effect on December 5, western companies that dominate the global oil shipping and insurance business will be banned from offering their services to ship or insure Russian oil that is purchased at more than \$60 per barrel.
- The price cap is an attempt by the West to cut Russia's oil revenues without affecting oil supplies
- The price cap could be seen as an attempt by the West to make buyers of Russian oil pay less for the oil they purchase, thus preventing the Kremlin from profiting too much from its oil sales.
- Russia has already had to sell its oil at discounted rates, which the West sees as a partial success in its efforts to choke Kremlin's revenues by refusing to purchase Russian oil.
- It should also be remembered that in the long run production decisions are based not merely on the cost of production but also on the potential rate of return from other investments.

- If investments in oil do not offer returns at least equal to or better than other sectors, Russia may well decide to cut its oil investments, and this would affect supplies adversely.

THE HINDU

Three more sites added to UNESCO

- Gujarat's Vadnagar town, the iconic Sun Temple at Modhera, and the rock-cut sculptures of Unakoti in Tripura have been added to the tentative list of UNESCO World Heritage Sites
- The Sun Temple at Modhera which is dedicated to the sun god is the earliest of such temples which set trends in architectural and decorative details, representing the Solanki style at its best.
- A multi-layered historic town, Vadnagar has a recorded past stretching back to nearly 8th century BC.
- The town still retains a large number of historic buildings that are primarily religious and residential in nature.
- Unakoti is an ancient holy place associated with Shaiva worship.
- The site is a massive gallery set in a forested area displaying a number of towering low-relief images in a unique style, making it a

masterpiece of human creative genius.

THE HINDU

Vagir

- The fifth Scorpène-class conventional submarine, Vagir, was delivered to the Navy by Mazagon Dock Shipbuilders Ltd. in Mumbai
- Vagir was launched into water on November 12, 2020, and commenced sea trials on February 1, 2022.
- The sixth and last of the Scorpène-class submarines, Vagsheer, was launched into water in April 2022 and is expected to be delivered to the Navy by 2023-end.
- The first submarine, INS Kalvari, was commissioned in December 2017, the second INS Khanderi in September 2019, the third INS Karanj in March 2021 and the fourth INS Vela in November 2021.

Air-independent propulsion (AIP)

- Air-independent propulsion (AIP), or air-independent power, is any marine propulsion technology that allows a non-nuclear submarine to operate without access to atmospheric oxygen (by surfacing or using a snorkel).

- AIP can augment or replace the diesel-electric propulsion system of non-nuclear vessels.

THE HINDU

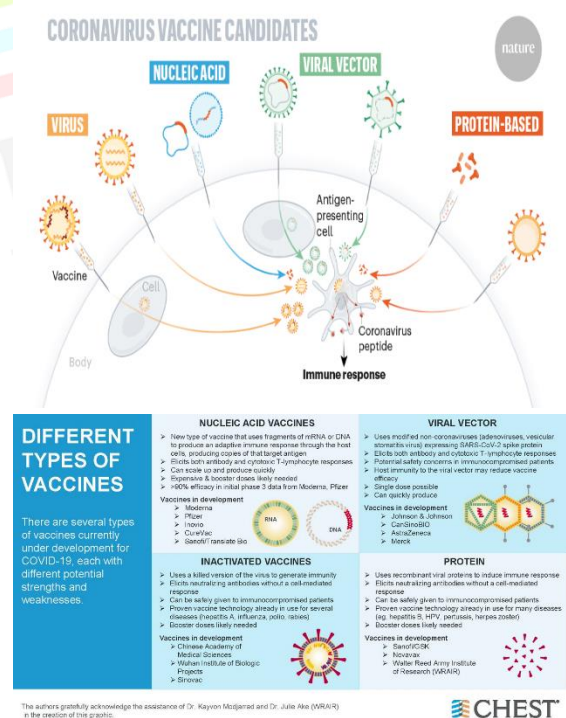
Dhokra

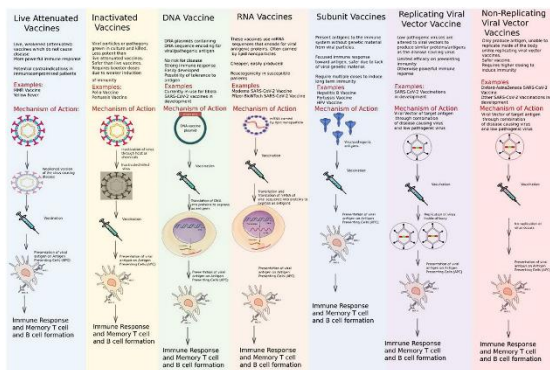
- Dhokra (also spelled Dokra) is non-ferrous metal casting using the lost-wax casting technique.
- This sort of metal casting has been used in India for over 4,000 years and is still used. One of the earliest known lost wax artefacts is the dancing girl of Mohenjo-Daro.
- The product of Dhokra artisans is in great demand in domestic and foreign markets because of their primitive simplicity, enchanting folk motifs, and forceful form.
- Dhokra horses, elephants, peacocks, owls, religious images, measuring bowls, lamp caskets, etc., are highly appreciated.
- The lost wax technique for the casting of copper-based alloys has also been found in China, Egypt, Malaysia, Nigeria, Central America, and other places.
- The process- There are two main processes of lost wax casting: solid casting and hollow casting. While the former is predominant in the south of India the latter is more common in Central and Eastern India.
- Solid casting does not use a clay core but instead a solid piece of wax to create the mould; hollow casting is the more traditional method and uses the clay core.



THE HINDU

Different types of vaccines





•

CDK (cyclin-dependent kinase)

- In the treatment protocol for breast cancer, CDK (cyclin-dependent kinase) inhibitors constitute a major therapeutic tool, especially for metastatic breast cancer. Three drugs, Ribociclib, Palbociclib, and Abemaciclib, belong to this therapeutic class, which help in slowing the spread of cancer cells in the body.
- A cyclin-dependent kinase inhibitor protein is a protein which inhibits the enzyme cyclin-dependent function kinase (CDK).
- Several function as tumor suppressor proteins.
- Cell cycle progression is delayed or stopped by cyclin-dependent kinase inhibitors, abbreviated CDIs, CKIs or CDKIs.

THE HINDU

ChatGPT & Ramanujan Machine

- The recent buzz around ChatGPT (Chat Generative Pre-trained

Transformer), a software tool that can answer questions on almost any topic, carry on conversations with humans, write poems, and computer programs, and perform many more complex tasks that require intelligence, is testimony that artificial intelligence can “create”.

- One can also mention here Google’s product LaMDA (Language Model for Dialogue Application) that is similar to ChatGPT and other sophisticated products (Dall E) that can create images from verbal descriptions.
- In early 2021, a team of Israeli scientists announced a software tool called The Ramanujan Machine that creates mathematical conjectures which are equations without proof.
- Mathematicians then prove or disprove these conjectures, thereby establishing theorems. Conjectures in mathematics shed light on newer frontiers.

THE HINDU

EC Appointment

- Article 324 of the Constitution is the fountainhead that creates the ECI.
- This brings to mind the larger issue of the working of the Constitution.
- While commending the adoption of the Constitution to the CA on November 25, 1949, Dr. B.R.

Ambedkar said, “However good a Constitution may be, it is sure to turn out bad because those who are called to work it, happen to be a bad lot. However bad a Constitution may be, it may turn out to be good if those who are called to work it, happen to be a good lot. The working of a Constitution does not depend wholly upon the nature of the Constitution.”

- The next day, on November 26, 1949, almost echoing Dr. Ambedkar’s words, Dr. Rajendra Prasad said, “Whatever the Constitution may or may not provide, the welfare of the country will depend upon the way in which the country is administered. That will depend upon the men who administer it... If the people who are elected are capable and men of character and integrity, they would be able to make the best even of a defective Constitution. If they are lacking in these, the Constitution cannot help the country. After all, a Constitution, like a machine, is a lifeless thing. It acquires life because of the men who control it and operate it, and India needs today nothing more than a set of honest men who will have the interest of the country before them.”

- d elevation of ECs to Chief Election Commissioner (CEC), and the tenures of ECs and CEC
- For this, the following process is proposed. An existing committee of Parliament or a new committee formed for this purpose should propose the qualifications and requirements for persons to be appointed as ECs/CEC.
- The proposals of the committee should be put to Parliament and should be considered approved only if they are approved by two-thirds the majority of the members of Parliament present and voting.
- Once the qualifications and requirements have been approved by Parliament, the same committee should be entrusted with the task of searching for and selecting individuals proposed to be appointed as ECs/CEC.
- The committee should invite nominations and applications of individuals appropriate for or interested in being appointed as +
ECs/CEC.
- The committee should send its recommendations to Parliament for consideration.
- Recommendations of the committee should be considered approved by Parliament only if approved by two-

thirds majority of the members of Parliament present and voting.

THE HINDU

INS MRMUGAO

The story so far:

- In a boost to the country's maritime capabilities, INS Mormugao has officially joined the Indian Navy's fleet, marking a significant milestone for an indigenous military expedition.
- The warship 'Yard 12705', named after the Goan port city of Mormugao, is the second of the four V+
- Visakhapatnam destroyers being built under the Indian Navy Project 15B, or P15B.

What is Project 15B?

- Project 15 was launched in the 1990s to add guided missile destroyers to the inventory of the Indian Navy. The project was named 'Delhi class'.
- It was followed by Project 15A or Kolkata class which primarily focused on advanced technology and equipment in surface ships.
- Project 15B or the Visakhapatnam class is a follow-on class of weapon-intensive Project 15A destroyers.
- The project was launched in January 2011 to incorporate advanced

design concepts such as state-of-the-art weapons and sensors, advanced stealth features, and a high degree of automation for "improved survivability, seakeeping, stealth, and manoeuvrability"

What are the capabilities of INS Mormugao?

The destroyer is 163 meters long, and 17 meters wide and displaces 7,400 tonnes when fully loaded.

- The ship is propelled by four gas turbines in a combined gas and gas (COGAG) configuration.
- The propulsion system allows the ship to achieve a speed of more than 30 knots (50km/h) and a maximum range of 4,000 nautical miles.
- It can accommodate a crew of about 300 personnel.
- INS Mormugao's firepower comprises BrahMos surface-to-surface missiles (SSM), Barak-8 surface-to-air (SAM) missiles for a long range of shore and sea-based targets, and a 76mm super rapid gun mount.
- The ship is armed with RBU-6000 anti-submarine rocket launchers and 533mm torpedo launchers.
- It is also equipped to carry and operate multi-role helicopters.

- Its enhanced stealth features ensure a reduced Radar Cross Section or radar signature.
- It is automated with sophisticated digital networks such as the Gigabyte Ethernet based Ship Data Network (GESDN), the Combat Management System (CMS), Automatic Power Management System (APMS), Integrated Platform Management System (IPMS), and Ship Data Network (SDN).
- While the CMS performs threat evaluation and resource allocation based on the tactical picture compiled and ammunition available onboard, APMS controls power management.
- IPMS is used to control and monitor machinery and auxiliaries and the SDN is the 'information highway for data' from sensors and weapons.
- Built with over 75% indigenous content, the commissioning of INS Mormugao
- Rule- based freedom of navigation, security of sea lanes, etc. have become more important than ever for stability and economic progress of the world,"

THE HINDU

AAP VS LG

- The Delhi Lieutenant Governor Vinai Kumar Saxena has directed the implementation of a 2016 order of the Committee on Content Regulation in Government Advertising.
- The order calls for recovering ₹97.14 crores plus interest from the ruling Aam Aadmi Party (AAP) for "political advertisements".
- The AAP party, however, has been defending its spending on advertisements stating that it is for the public knowledge of different government schemes and various awareness campaigns.
- A three -member body, the CCRGA was formed by the Union Ministry of Information and Broadcasting in April 2016, to regulate the content of Central and State government advertisements on all media platforms.

THE HINDU

Maritime anti-piracy bill

- What is the strategic importance?**
- While India's interests are closely tied to the Indian Ocean, China has been rapidly expanding its naval footprint in the region.
 - Amid growing Chinese strategic interests, India renewed its focus on bolstering its maritime capabilities in the region to counter the threat

- Parliament has passed the Maritime Anti-Piracy Bill 2022 with Rajya Sabha
- The Bill has already been passed by Lok Sabha.
- The Bill enables Indian authorities to take action against piracy on the high seas. It applies to the sea beyond the Exclusive Economic Zone, which is 200 nautical miles from India's coastline.
- The Bill defines piracy as any illegal act of violence, detention, or destruction against a ship, aircraft, or person, for private purposes, by the crew or passengers of a private ship or aircraft.
- The Bill will strengthen India's credentials as a partner with other countries to make the world more piracy free.
- This Bill will provide an effective legal instrument to combat maritime piracy, not only in India's territorial waters in the Exclusive Economic Zone but also on the high seas.
- More than 90 percent of trade taking place by sea routes.
- India has taken a lead on the issue of maritime security at a multilateral forum. This would enhance India's global credentials and strengthen maritime security.

THE HINDU

Change in terror matrix

- The world has been witnessing a flurry of meetings and conferences on the issue of countering terrorism worldwide.
- The list resembles an alphabetic soup, viz., meetings of the United Nations Security Council Counter-Terrorism Committee, the No Money for Terror Conference, and an Interpol Conference in which terrorism figured prominently.
- The recurring theme has been the need to wage a coordinated fight against terrorism
- Terrorism remains the omnipresent threat that it has always been.
- The locales may shift but the threat remains.
- While Europe and Asia remain in the cross hairs of different terrorist groups, Africa and northwest Asia appear to have become the main hunting ground of the al-Qaida and IS terrorists.
- Linkages among terrorist groups, have if anything, become strengthened,
- What is also becoming evident is that al-Qaeda's activities in particular are becoming more decentralized.
- It is finding fertile ground in the Sahel region of Africa and in Eastern Africa, apart from its salience in Afghanistan.
- The declining level of serious terrorist incidents does not, however, translate into a decline in terrorism
- Symptomatic of growing radicalization and suggestive of the fact that a sizeable base is being built in the southern region.

Steps

- Not to accept all declarations of a decline in levels of terrorism at face value and, at another level, not to treat some terrorists as good and others as bad, based on each nation's predilections.
- The next step is to reactivate the proposal for the Comprehensive Convention on International Terrorism (CCIT) that has been languishing in the offices of the UN (since India first proposed this in the 1990s), and finalize the list of items needed to check terrorism globally.
- Counter-terrorism agencies the world over need to hone their skills and capabilities on how best to counter 'new age terrorism'.
- There is also a clear need for counter-terrorism agencies across the world to function in a more coordinated manner, exchanging both intelligence and tactics.

- They need to take stock of the newer patterns of terror such as ‘enabled terrorism’ and ‘remote control terrorism’, viz., violence conceived and guided by controllers thousands of miles away, positing the dangers of Internet-enabled terrorism.

THE HINDU

US and WTO

- In a significant development in international trade law, four separate World Trade Organization (WTO) Panel reports have ruled that the tariffs of 25% and 10% on steel and aluminium, respectively that the United States (U.S.) had imposed during the presidency of Donald Trump are inconsistent with WTO law.
- The cases were brought by China, Norway, Switzerland, and Turkey.
- The WTO panellists held that these tariff rates breached the U.S.’s obligations under Article II.1 of the General Agreement on Tariffs and Trade (GATT), which obligates countries not to impose tariffs beyond bound rates.
- Article XXI(b)(iii) of GATT allows a country to take any action ‘which it considers necessary for the protection of its essential security interests taken in time of war or

other ‘emergency in international relations

- Neoliberalism is based on principles such as non-discrimination in international economic relations and a peaceful settlement of disputes through neutral international courts.
- It champions interdependence. These principles are achieved by legalizing the neoliberal order through the creation of global institutions such as the WTO and a plethora of free trade and investment treaties.
- International economic order today is moving away from the post- Cold War neoliberal order toward a new geoeconomics order.
- As the difference between the size of the Chinese and American economies began to shrink at a rapid pace, the U.S. seems to be giving up on championing free trade and swiftly embracing protectionism.
- The Trumpian tariffs wrapped in the cloth of national security, which the Joe Biden administration also backed.
- Geoeconomics order will inevitably lead to ‘international trade lawlessness’.
- Geoeconomics is the use of economic tools to advance geopolitical objectives.

THE HINDU

Uncontrolled re-entry

- Uncontrolled re-entries the phenomenon of rocket parts falling back to earth in an unguided fashion once their missions are complete.

What is an uncontrolled re-entry?

- In an uncontrolled re-entry, the rocket stage simply falls. Its path down is determined by its shape, angle of descent, air currents, and other characteristics.
- It will also disintegrate as it falls.
- As the smaller pieces fan out, the potential radius of impact will increase on the ground.
- Some pieces burn up entirely while others don't.
- But because of the speed at which they're traveling, debris can be deadly.
- Parts of a SpaceX Falcon 9 that fell down in Indonesia in 2016 included two "refrigerator-sized fuel tanks".
- If re-entering stages still hold fuel, atmospheric and terrestrial chemical contamination is another risk.
- Casualty risk from uncontrolled rocket body re-entries as being on the order of 10% in the next decade" and that countries in the 'Global

South' face a "disproportionately higher" risk of casualties.

- There is no international binding agreement to ensure rocket stages always perform controlled re-entries nor on the technologies with which to do so.
- The Liability Convention 1972 requires countries to pay for damages, not prevent them.
- Advances in electronics and fabrication have made way for smaller satellites, which are easier to build and launch in large numbers.
- These satellites experience more atmospheric drag than if they had been bigger, but they are also likelier to burn up during re-entry.

THE HINDU

Sahitya academy awards

- Tamil author M. Rajendran, Telugu writer Madhuranthakam Narendra and Sanskrit poet Janardan Prasad Pandey 'Mani' are among the 23 authors who won the Sahitya Akademi awards for 2022
- Anuradha Roy has been selected for her English novel All the lives we never lived.
- The Bhasha Samman will be given to Udaya Nath Jha for his contribution to the field of classical and medieval literature in the eastern region.

- In the Assamese language, Manoj Kumar Goswami won the award for his collection of short stories Bhool Satya.
- Gulam Mohammad Shaikh won in Gujarati for Gher Jatan, a collection of autobiographical essays, while Mr. Rajendran won in Tamil for his novel Kala Pani.
- Other languages Winners in other languages are Maya Anil Kharangate (Konkani), Praveen Dashrath Bandekar (Marathi), Mr. Madhuranthakam Narendra (Telugu), Anis Ashfaq (Urdu), Veena Gupta (Dogri), Kamal Ranga (Rajasthani), K.B. Nepali (Nepali), Farooq Fayaz (Kashmiri) and Rashmi Choudhury (Bodo).
- M. Thomas Mathew won the award in Malayalam for his work on literary criticism, Ashaante Seethayanam, while Mudnakudu Chinnaswamy won in Kannada for a collection of articles, Bahutvada Bhaarata mattu Bouddha Taatvikate.
- The award for Bengali works will be announced later.
- The Sahitya Akademi 'Yuva Puraskar' was awarded to Pawan Nalat for his Marathi poetry collection Mi Sandarbha Pokharatoy.
- The Bal Sahitya Puraskar has been given to Ganesh Marandi for his Santali book Hapan Mai.

THE HINDU

J&K Land Grant rule

What do new land laws entail?

- According to the new land laws, the leases of current landowners will not be extended in case of their lease expiry.
- It reads that all leases, except the subsisting or expired residential leases, expired or determined prior to the coming into force of these rules or issued under these rules shall not be renewed and shall stand determined.
- Unlike the previous up to 99 years of lease, the lease period has been reduced to 40 years.

What is the L-G administration's plan for lease now?

- An expert committee will enlist all properties where the lease had ended. It will be e-auctioned afresh.
- The rules open bidding to "any person legally competent under Section 11 of the Indian Contract Act, 1872."
- These rules deem a person or an entity in default of Government Revenue accrued to the government under the J&K Land Grant Act, 1960, or a Government convicted under the Prevention of Money Laundering

Act, 2002 shall not be eligible for participation in the auction.

- According to now- repealed land laws, no such land shall be granted on lease to the person, who is not a permanent residence of the State; except where the Government, for the reasons to be recorded, relax this restriction in the interest of industrial or commercial development or in the favour of a registered charitable society.

THE HINDU

Japan's new nuclear plan

- Japan on adopted a new policy promoting greater use of nuclear energy to ensure a stable power supply amid global fuel shortages and to reduce carbon emissions, in a major reversal of its phase- out plan following the Fukushima crisis.
- The new policy says Japan must maximize the use of existing nuclear reactors by restarting as many of them as possible and prolonging the operating life of old reactors beyond their 60-year limit, and by developing next generation reactors to replace them.
- Anti-nuclear sentiment and safety concerns rose sharply in Japan after the 2011 Fukushima disaster, and restart approvals have since come

slowly under stricter safety standards.

Greenwashing

What Is Greenwashing?

- Greenwashing is the process of conveying a false impression or misleading information about how a company's products are environmentally sound.
- Greenwashing involves making an unsubstantiated claim to deceive consumers into believing that a company's products are environmentally friendly or have a greater positive environmental impact than they actually do.
- Performed through the use of environmental imagery, misleading labels, and hiding tradeoffs.
- Also known as "green sheen," greenwashing is an attempt to capitalize on the growing demand for environmentally sound products, whether that means they are more natural, healthier, free of chemicals, recyclable, or less wasteful of natural resources.

THE HINDU



CROMESH Technology

- Scientists working on Australia's Great Barrier Reef have successfully trialled a new method for freezing and storing coral larvae they say could eventually help rewild reefs threatened by climate change.
- Scientists are scrambling to protect coral reefs as rising ocean temperatures destabilize delicate ecosystems.
- The Great Barrier Reef has suffered four bleaching events in the last seven years, including the first ever bleach during a La Nina phenomenon, which typically brings cooler temperatures.

What is Cryomesh?

- Cryomesh is a specially fabricated mesh used as a substrate in cryopreservation. This is lightweight and can be manufactured cheaply. It better preserves coral and has the properties of cryoplates.
- The mesh technology will help store coral larvae at -196°C (-320.8°F).
- Preserving corals cryogenically, frozen coral can be stored and later reintroduced to the wild but the current process requires sophisticated equipment including lasers.

- Scientists say a new lightweight "cryomesh" can be manufactured cheaply and better preserves coral.

THE HINDU

Mesh technology

- The mesh technology, which will help store coral larvae at -196°C (-320.8°F), was devised by a team from the University of Minnesota's C
- Significance of Coral Cryopreservation.
- Cryogenically frozen coral can be stored and later reintroduced to the wild. This could eventually help to rewild reefs threatened by climate change.
- It can build a bigger, more diverse bank of frozen living corals, preserving biodiversity.

Types of Diabetes

- Diabetes is a chronic (long-lasting) disease that affects how your body turns food into energy.
- There are three main types of diabetes: type 1, type 2, and gestational diabetes (diabetes while pregnant).
- Type 1 diabetes, your pancreas doesn't make insulin or makes very little insulin. Insulin helps blood sugar enter the cells in your body for use as energy.

- Without insulin, blood sugar can't get into cells and builds up in the bloodstream.
- In Type 2 diabetes, cells don't respond normally to insulin; this is called insulin resistance.
- Your pancreas makes more insulin to try to get cells to respond.
- Eventually, your pancreas can't keep up, and your blood sugar rises, setting the stage for prediabetes and type 2 diabetes.
- High blood sugar is damaging to the body and can cause other serious health problems, such as heart disease, vision loss, and kidney disease.

THE HINDU

Neuro marker

- Researchers have found a neuroimaging signature to predict the intensity of drug and food cravings (Nature Neuroscience).
- Cravings to use drugs or to eat are considered driving factors for substance use or overeating.
- Cravings induced by drug- or food-related stimuli help predict drug use and relapse, unhealthy eating and weight gain.
- They identified a neuro markers that predicted the intensity of drug and food cravings among users of

nicotine, alcohol, and cocaine alongside matched controls.

THE HINDU

Strep A

- An unseasonal rise in group A Streptococcus (strep A) infections has killed over a dozen children.
- Strep A infections cause a mild sore throat but occasionally they can lead to scarlet fever and, rarely, to even more serious conditions such as meningitis.
- Some researchers theorized that the off season outbreaks are a result of past surges that spawned new strep strains, which happened before the pandemic.

THE HINDU

Hybrid immunity

- It is becoming clear that hybrid immunity, that is immunity provided by a combination of infection and vaccination, provides better protection against subsequent COVID-19 than either vaccination or infection alone higher antibody levels, less frequent, and less severe infection.
- Irrespective of whether an antigen is introduced as a vaccine or due to pathogen replication, repeated

exposure stimulates B cell responses and antibody production.

- Most people with hybrid immunity will have encountered SARS-CoV-2 antigens more often than people who were only vaccinated or only infected.
- Additionally, the quality of the immune responses differs.
- Infection exposes the body to a whole range of antigens coming from different parts of the virus; mRNA and virus-vectored vaccines express only spike, which is the most important vaccine target on the virus surface and exposed to secreted antibodies.
- However, other antigens are also important for T-cell responses.

"**B cells** produce and secrete antibodies, activating the immune system to destroy the pathogens. The main **difference between T cells** and **B cells** is that **T cells** can only recognize viral antigens outside the infected **cells** whereas **B cells** can recognize the surface antigens of bacteria and viruses." Sep 25, 2017

Although all lymphocytes originate from only one type of stem cell, the final steps in their development lead to the production of two distinct types of lymphocyte: T-lymphocytes and B-lymphocytes.

T-lymphocytes	B-lymphocytes
Produced in the bone marrow and migrate to the thymus gland for final maturation.	Produced in the bone marrow and mature in the bone marrow itself.
If the antigen comes from outside the body, it needs to be presented to the T-cells on the surface of an antigen presenting cell.	Recognize and bind antigen particles without having to be presented by an antigen presenting cell.
Cell-mediated immunity	Antibody mediated (humoral) immunity

India's Foreign policy

How did India handle the Ukraine crisis?

- The war in Ukraine saw the government spell out its version of "non-alignment", as it sought to keep a balance in the growing polarisation between the U.S. and the European Union on one side, and Russia on the other.
- In the past 10 months, the war has led to thousands of deaths, and nearly 8 million refugees.
- Meanwhile, a slew of sanctions by the West meant to target the Russian economy led to food and fuel shortages and price increases, which worried India.
- The government's stand through the year was a tight-rope walk: with the Prime Minister making his discomfort with the war clear directly to Russian President Vladimir Putin with the words "This era is not for war",
- But at the same time refusing to accept western sanctions, growing military and oil trade with Russia, and seeking rupee -based payment mechanisms to facilitate them.
- Most significantly, in more than a dozen resolutions at the UNSC, UNGA, IAEA, Human Rights Commission, and other multilateral

platforms seeking to censure Russia for the invasion and humanitarian crisis, India chose to abstain.

- Mr. Jaishankar said India's stand was guided by its national interests.

What were the other highlights?

- In 2022, India returned to Free Trade Agreements, after a hiatus of several years when the Modi government had called for a review of all FTAs, scrapped all Bilateral Investment Treaties (BITs), and walked out of the 15-nation Asian Regional Comprehensive Economic Partnership (RCEP).
- In 2022, India signed trade agreements with the UAE and Australia and hopes to progress on talks with the EU, Gulf Cooperation Council, and Canada for others. India also joined the U.S.-led Indo-Pacific Economic Forum (IPEF), although it later decided to stay out of trade talks.
- At the G-20, India is expected to highlight climate change transitions, "women-led" development, and multilateral reform, among other key issues.

What about ties with neighbors?

- In the neighborhood, India's foreign policy was marked by economic assistance to Sri Lanka in the midst of

its collapse, and regional trade and energy agreements with Bangladesh, Bhutan and Nepal that could see a South Asian energy grid emerge.

- India has also strengthened ties with Central Asian countries on connectivity.
- The government kept channels open with repressive regimes like Afghanistan's Taliban and the Myanmar Junta, opening a "technical mission" in Kabul and sending the foreign secretary to Nay Pyi Taw.
- This week, India abstained from a UNSC vote calling for Myanmar to end violence and release political prisoners.
- With Iran too, where protests against the killing of activist Mahsa Amini have brought thousands onto the streets, India has steered clear of any criticism. However, with Pakistan, ties remain flat-lined.

THE HINDU



CROMESH Technology

- Scientists working on Australia's Great Barrier Reef have successfully trialled a new method for freezing and storing coral larvae they say could eventually help rewild reefs threatened by climate change.
- Scientists are scrambling to protect coral reefs as rising ocean temperatures destabilize delicate ecosystems.
- The Great Barrier Reef has suffered four bleaching events in the last seven years, including the first ever bleach during a La Nina phenomenon, which typically brings cooler temperatures.

What is Cryomesh?

- Cryomesh is a specially fabricated mesh used as a substrate in cryopreservation. This is lightweight and can be manufactured cheaply. It better preserves coral and has the properties of cryoplates.
- The mesh technology will help store coral larvae at -196°C (-320.8°F).
- Preserving corals cryogenically, frozen coral can be stored and later reintroduced to the wild but the current process requires sophisticated equipment including lasers.

- Scientists say a new lightweight "cryomesh" can be manufactured cheaply and better preserves coral.
- The mesh technology, which will help store coral larvae at -196°C (-320.8°F), was devised by a team from the University of Minnesota's C
- Significance of Coral Cryopreservation.
- Cryogenically frozen coral can be stored and later reintroduced to the wild. This could eventually help to rewild reefs threatened by climate change.
- It can build a bigger, more diverse bank of frozen living corals, preserving biodiversity.

THE HINDU

Types of Diabetes

- Diabetes is a chronic (long-lasting) disease that affects how your body turns food into energy.
- There are three main types of diabetes: type 1, type 2, and gestational diabetes (diabetes while pregnant).
- Type 1 diabetes, your pancreas doesn't make insulin or makes very little insulin. Insulin helps blood sugar enter the cells in your body for use as energy.

- Without insulin, blood sugar can't get into cells and builds up in the bloodstream.
- In Type 2 diabetes, cells don't respond normally to insulin; this is called insulin resistance.
- Your pancreas makes more insulin to try to get cells to respond.
- Eventually, your pancreas can't keep up, and your blood sugar rises, setting the stage for prediabetes and type 2 diabetes.
- High blood sugar is damaging to the body and can cause other serious health problems, such as heart disease, vision loss, and kidney disease.

THE HINDU

Neuro marker

- Researchers have found a neuroimaging signature to predict the intensity of drug and food cravings (Nature Neuroscience).
- Cravings to use drugs or to eat are considered driving factors for substance use or overeating.
- Cravings induced by drug or food related stimuli help predict drug use and relapse, unhealthy eating and weight gain.
- They identified a neuro markers that predicted the intensity of drug and food cravings among users of

nicotine, alcohol, and cocaine alongside matched controls.

THE HINDU

Strep A

- An unseasonal rise in group A Streptococcus (strep A) infections has killed over a dozen children.
- Strep A infections cause a mild sore throat but occasionally they can lead to scarlet fever and, rarely, to even more serious conditions such as meningitis.
- Some researchers theorized that the off season outbreaks are a result of past surges that spawned new strep strains, which happened before the pandemic.

THE HINDU

Hybrid immunity

- It is becoming clear that hybrid immunity, that is immunity provided by a combination of infection and vaccination, provides better protection against subsequent COVID-19 than either vaccination or infection alone higher antibody levels, less frequent, and less severe infection.
- Irrespective of whether an antigen is introduced as a vaccine or due to pathogen replication, repeated

Exposure stimulates B cell responses and antibody production.

- Most people with hybrid immunity will have encountered SARS-CoV-2 antigens more often than people who were only vaccinated or only infected.
- Additionally, the quality of the immune responses differs.
- Infection exposes the body to a whole range of antigens coming from different parts of the virus; mRNA and virus-vectored vaccines express only spike, which is the most important vaccine target on the virus surface and exposed to secreted antibodies.
- However, other antigens are also important for T-cell responses.

"**B cells** produce and secrete antibodies, activating the immune system to destroy the pathogens. The main **difference between T cells** and **B cells** is that **T cells** can only recognize viral antigens outside the infected **cells** whereas **B cells** can recognize the surface antigens of bacteria and viruses." Sep 25, 2017

Although all lymphocytes originate from only one type of stem cell, the final steps in their development lead to the production of two distinct types of lymphocyte: T-lymphocytes and B-lymphocytes.

T-lymphocytes	B-lymphocytes
Produced in the bone marrow and migrate to the thymus gland for final maturation.	Produced in the bone marrow and mature in the bone marrow itself.
If the antigen comes from outside the body, it needs to be presented to the T-cells on the surface of an antigen presenting cell.	Recognize and bind antigen particles without having to be presented by an antigen presenting cell.
Cell-mediated immunity	Antibody mediated (humoral) immunity

India's Foreign policy

How did India handle the Ukraine crisis?

- The war in Ukraine saw the government spell out its version of "non-alignment", as it sought to keep a balance in the growing polarisation between the U.S. and the European Union on one side, and Russia on the other.
- In the past 10 months, the war has led to thousands of deaths, and nearly 8 million refugees.
- Meanwhile, a slew of sanctions by the West meant to target the Russian economy led to food and fuel shortages and price increases, which worried India.
- The government's stand through the year was a tight rope walk: with the Prime Minister making his discomfort with the war clear directly to Russian President Vladimir Putin with the words "This era is not for war",
- But at the same time refusing to accept western sanctions, growing military and oil trade with Russia, and seeking rupee •based payment mechanisms to facilitate them.
- Most significantly, in more than a dozen resolutions at the UNSC, UNGA, IAEA, Human Rights Commission, and other multilateral

Platforms seeking to censure Russia for the invasion and humanitarian crisis, India chose to abstain.

- Mr. Jaishankar said India's stand was guided by its national interests.

What were the other highlights?

- In 2022, India returned to Free Trade Agreements, after a hiatus of several years when the Modi government had called for a review of all FTAs, scrapped all Bilateral Investment Treaties (BITs), and walked out of the 15-nation Asian Regional Comprehensive Economic Partnership (RCEP).
- In 2022, India signed trade agreements with the UAE and Australia and hopes to progress on talks with the EU, Gulf Cooperation Council, and Canada for others. India also joined the U.S. led Indo Pacific Economic Forum (IPEF), although it later decided to stay out of trade talks.
- At the G20, India is expected to highlight climate change transitions, "women-led" development, and multilateral reform, among other key issues.

What about ties with neighbors?

- In the neighborhood, India's foreign policy was marked by economic assistance to Sri Lanka in the midst of

its collapse, and regional trade and energy agreements with Bangladesh, Bhutan and Nepal that could see a South Asian energy grid emerge.

- India has also strengthened ties with Central Asian countries on connectivity.
- The government kept channels open with repressive regimes like Afghanistan's Taliban and the Myanmar Junta, opening a "technical mission" in Kabul and sending the foreign secretary to Nay Pyi Taw.
- This week, India abstained from a UNSC vote calling for Myanmar to end violence and release political prisoners.
- With Iran too, where protests against the killing of activist Mahsa Amini have brought thousands onto the streets, India has steered clear of any criticism. However, with Pakistan, ties remain flat-lined.

THE HINDU



Article 200

- When the Constitution was adopted by the Constituent Assembly, the founders left deliberate gaps in it to enable a future Parliament to modify and amend the Constitution that was in accordance with the aspirations and the will of the people.
- One of the silences in the Constitution is in Article 200 which does not prescribe a timeline for the Governor to provide assent to Bills sent by the Legislative Assembly.
- This has been used to advantage by the Governors of various Opposition-ruled States to obfuscate the mandate of democratically elected governments.
- In *Purushothaman Nambudiri vs State of Kerala (1962)*, a Constitution Bench of the Supreme Court clarified that the Constitution does not impose any time limit within which the Governor should provide assent to Bills.
- Interestingly, the question as to whether the Governor can sit on Bills indefinitely did not arise before the Court; the Court too had no occasion to provide an authoritative ruling on it. However, the Court has maintained that the Governor must honor the will of the Legislature and that the President or a Governor can act only in harmony with their Council of Ministers.
- The additional issue of the President not acting swiftly to grant assent to the Bills reserved by the Governor for the consideration of the President cannot be missed.
- The 'National Commission to Review the Working of the Constitution' that was set up by the A.B. Vajpayee government in 2000 recommended that "there should be a time limit say a period of six months within which the Governor should take a decision whether to grant assent or to reserve a Bill for consideration of the President."
- It is also important to understand the real objective behind Article 200 requiring the Governor to grant assent to Bills.
- It was felt that an independent Governor would be necessary to act as a check and balance, to avoid the state-enacted law being repugnant to the Union laws.
- It was suggested by the Sarkari commission that delay from the side of the Governor in granting assent can be avoided by streamlining the existing procedures; by making prior consultation with the Governor at the stage of the drafting of the Bill itself, and by prescribing time limits for its disposal.

- ‘Reasonable time is what is necessary, under the circumstances, to do conveniently what the contract or duty requires should be done in a particular case
- In *Keisham Meghachandra Singh vs The Hon’ble Speaker, Manipur Legislative Assembly (2020)*, a case on anti-defection law, the Supreme Court held that the Speaker must act on disqualification petitions against the defecting MLAs within a ‘reasonable time’.
- It clarified in the same judgment that reasonable time is three months in the case of disqualification petitions
- The Governor’s duty is only to ensure that an elected government is working within the parameters of the Constitution.
- It does not mean that the Governor can sit on the Bills indefinitely, merely because there is no time limit prescribed for the Governor to decide on the bills.
- The Constitution should be read contextually to provide a meaning that the Governor must act on the Bills within a reasonable time, say three months.
- The constitutional silences should not give way for unconstitutional inaction, leaving space for anarchy in the rule of law.
- As Justice V.R. Krishna Iyer put it pithily in *Shamsher Singh and Anr. vs State Of Punjab*, “maybe, our founding fathers were not political prophets who could foresee glaring abuses or perverted developments”.

THE HINDU

Dark pattern

The story so far:

- Some Internet-based firms have been tricking users into agreeing to certain conditions or clicking a few links.
- The unsuspecting users would not have accepted to such terms or clicked URLs (uniform resource locator), but for the deceptive tactics deployed by tech firms.
- Such acceptances and clicks are flooding the inboxes of the users with promotional emails they never wanted, making it hard to unsubscribe or request deletion.
- These are examples of “dark patterns,” also known as “deceptive patterns.”

What are dark patterns?

- Such patterns are unethical user interface designs that deliberately make your Internet experience harder or even exploit you.

- In turn, they benefit the company or platform employing the designs.
- By using dark patterns, digital platforms take away a user's right to full information about the services they are using and their control over their browsing experience.
- The term is credited to UI/UX (user interface/user experience) researcher and designer Harry Brignull, who has been working to catalogue such patterns and the companies using them since around 2010.

THE HINDU

XBB Lineage

What is the XBB lineage?

- The SARS-CoV-2 virus has the potential to evolve by exchanging large fragments of the genome, called recombination.
- First detected in January 2022, the XBB lineage of SARS-CoV-2 resulted from recombinant between Omicron sublineages BA.2.10.1 and BA.2.75.
- The lineage was largely detected in genomes from Singapore and India, with the largest number of genomes on GISAID belonging to the U.S. and India.
- Lineage BQ.1 is a BA.5 sublineage having the mutations K444T and

N460K in the spike protein of the virus.

About GISAID

- Stands for the Global Initiative on Sharing Avian Influenza Data.
- It is a global science initiative and primary source established in 2008 that provides open access to genomic data of influenza viruses and the coronavirus responsible for the COVID-19 pandemic.

THE HINDU

World heritage and forest rights

- Of the 39 areas declared by UNESCO in 2012 as being critical for biodiversity in the Western Ghats, 10 are in Karnataka.
- Before recognizing areas as world heritage sites, UNESCO seeks the opinion of the inhabitants on the implication of the possible declaration on their lives and livelihoods.
- Development activities like road repair have been stopped.
- Farming is not allowed in a normal way, a slight sound is demurred, the use of fertilizers is banned, and even a small knife is not allowed to be carried into the forest.

- The people are prohibited from cutting trees falling on their houses to undertake repair work or move the earth.
- A striking revelation was that these restrictions were in enforcement from the time these areas were declared as protected areas and not necessarily after their declaration as world heritage sites.
- The increasing animal insurgency is causing damage to the crops of the farming forest dwellers.
- Those who don't have recognition over their lands are not given compensation for the loss.
- Monkeys and snakes released from urban settings into the forests enter their houses.
- More importantly, the monkeys do not survive in the wild for long.
- Owning livestock in the villages close to forests is more challenging than in regular revenue villages.
- In the areas where irrigation projects have come up, the affected people reported that grazing lands have been taken over by the government to compensate for the forest land lost to such projects.
- Half the world heritage sites in Karnataka fall under protected areas (National Park: 1; Wildlife Sanctuaries: 4) and the remaining are reserved forests.
- The issue becomes complicated when the people refuse to 're-locate' on grounds of their attachment to the land fearing extinction of their culture and religious roots.

THE HINDU

CPCB Report on polluted river

- The number of polluted stretches in India's rivers has fallen from 351 in 2018 to 311 in 2022, though the number of most polluted stretches is practically unchanged, according to a report from the Central Pollution Control Board (CPCB) in November but made public this week. The CPCB network monitors water quality at 4,484 locations across the country.
- Biochemical oxygen demand (BOD) exceeding 3 milligrams per liter (mg/l) is identified as a polluted location.
- Two or more polluted locations identified on a river in a continuous sequence are considered as a "polluted river stretch."
- A BOD less than 3 mg/l means the river stretch is fit for "outdoor bathing."
- Further, stretches with BOD exceeding 30 mg/l are considered "Priority 1" (P1), meaning, the most

polluted and thus needing the most urgent remediation.

- There are five such categories with “Priority 2” (P2) indicating a BOD of 20- 30 mg/l and “Priority 5” (P5) indicating 3-6 mg/l.
- The success of river -cleaning programs is measured by the number of stretches moving from 1 to 2, 2 to 3 until those in 5 (requiring the least action) to reduce.
- While Gujarat and Uttar Pradesh had the highest number of “Priority 1” river stretches (6), Maharashtra had the most polluted river stretches 55, followed by Madhya Pradesh (19), Bihar (18), Kerala (18), Karnataka (17) and Uttar Pradesh (17).

THE HINDU

Bomb cyclone

- A bomb cyclone is a large, intense midlatitude storm that has low pressure at its center, weather fronts, and an array of associated weather, from blizzards to severe thunderstorms to heavy precipitation.
- It becomes a bomb when its central pressure decreases very quickly by at least 24 millibars in 24 hours.
- Two famed meteorologists, Fred Sanders and John Gyakum gave this pattern its name in a 1980 study.

- When a cyclone “bombs,” or undergoes bombogenesis, this tells us that it has access to the optimal ingredients for strengthening, such as high amounts of heat, moisture, and rising air.
- The U.S. Eastern Seaboard is one of the regions where bombogenesis is most common.
- That’s because storms in the midlatitudes a temperate zone north of the tropics that includes the entire continental U.S. draw their energy from large temperature contrasts.
- Along the U.S. East Coast during winter, there’s a naturally potent thermal contrast between the cool land and the warm Gulf Stream current.
- Over the warmer ocean, heat, and moisture are abundant.
- But as cool continental air moves overhead and creates a large difference in temperature, the lower atmosphere becomes unstable and buoyant.
- Air rises, cools and condenses, forming clouds and precipitation.

THE HINDU



(AVGC) Sector

- A “Create in India” campaign with an exclusive focus on content creation; an international platform for animation, visual effects, gaming and comics (AVGC) aimed at attracting foreign direct investment, co-production treaties, and innovation in collaboration with international counterparts; national and regional centers of excellence for skill development; and leveraging the National Education Policy to develop creative thinking at school level.
- These are among the recommendations in the report of a task force on AVGC promotion, submitted to the Union government.
- The task force has proposed a national AVGC Extended Reality Mission with a budget outlay to be created for the integrated promotion and growth of the sector.
- The Ministry of Education may advise NCERT (National Council of Educational Research and Training) to create books focusing on subjects relevant to AVGC.
- The task force has proposed standardization of admission tests for AVGC-related courses.
- “With an eye on the demand for 20 lakh skilled professionals in the AVGC sector in this decade, there is a need to augment skilling initiatives and enhance industry participation for training purposes and to ensure employment opportunities,”
- “Memorandum of Cooperation may be signed between India and other developed global AVGC markets the U.S., Japan, South Korea, and Germany for providing internships (six months to a year) to Indian AVGC professionals,”
- The report has also recommended the establishment of AVGC accelerators and innovation hubs in academic institutions; democratizing AVGC technologies by promoting subscription-based pricing models for micro, small and medium enterprises (MSME),
- Startups and institutions; indigenous technology development through incentive schemes and Intellectual Property (IP) creation; and setting up a dedicated production fund for domestic content creation from across India to promote the country’s culture and heritage globally.
- The team, which emphasized skilling and industry outreach for youth in tier- 2 and 3 towns and villages, said there should be special incentives for women entrepreneurs in the sector and promotion of local

children's channels for raising awareness of the rich culture and history of India among children and youth.

- It also suggested the establishment of a framework to ensure the protection of child rights in the digital world.
- India today contributes about \$2.5-3 billion of the estimated \$260-275 billion worldwide AVGC market.
- According to industry experts, the Indian market which currently employs about 1.85 lakh AVGC professionals, can witness a growth of 14- 16% in the next decade.

THE HINDU

STOVAR VS CATOVAR



STOVAR

- STOVAR ("short take-off but arrested recovery" or "short take-off, barrier-arrested recovery") is a system used for the launch and recovery of aircraft from the deck of an aircraft carrier, combining elements of

"short take-off and vertical landing" (STOVL) with "catapult-assisted take-off but arrested recovery

- Compared to CATOVAR, STOVAR is less expensive to develop. It is easier to operate than a CATOVAR configuration, which requires large number of operators to launch the aircraft. Lack of any moving parts in the ski jump makes it less expensive to maintain the launch system.
- It does not require any additional system to generate the force required to launch the aircraft, unlike CATOVAR where an external force is needed to be generated either from a steam catapult or electromagnetic aircraft launch system (EMALS) to launch the aircraft.
- India's first aircraft carrier, INS Vikrant (British -built), the predecessor to INS Vikrant (IAC-1), was a 19,000-tonne CATOVAR -type light carrier designed for fleet air defense.
- It could carry between 21 to 23 aircraft (including helicopters).
- Its replacement, INS Viraat (British built), at 28,000 tonnes, was a V/STOL-type light fleet air defense carrier, with an air wing of 26 to 30 aircraft and helicopters.

- Notably, its Sea Harrier aircraft also possessed dedicated land attack capability.
- INS Vikramaditya (Russian -built), at 45,000 tonnes, is a medium- sized STOBAR -type aircraft carrier, capable of both fleet air defence and land attack, carrying up to 30 aircraft and helicopters.
- INS Vikrant IAC-1) is almost similar in size, classification, role, and capability to INS Vikramaditya.

THE HINDU

14TH AA OF USA

Section 1 Due Process

- All persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States and of the State wherein they reside.
- No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws.

Section 3 Disqualification from Holding Office

- No person shall be a Senator or Representative in Congress, or elector of President and Vice-President, or hold any office, civil or military, under the United States, or under any State, who, having previously taken an oath, as a member of Congress, or as an officer of the United States, or as a member of any State legislature, or as an executive or judicial officer of any State, to support the Constitution of the United States, shall have engaged in insurrection or rebellion against the same, or given aid or comfort to the enemies thereof.
- But Congress may by a vote of two-thirds of each House, remove such disability.

THE HINDU

What is a strong trademark?

The story so far:

- On December 21, the Delhi High Court, in the case of Hamdard National Foundation (India) vs Sadar Laboratories Pvt. Ltd., restrained Sadar Laboratories from manufacturing and selling beverages under the impugned trademark 'Dil Afza'.

- The court observed that the trademark 'Rooh Afza' is prima facie a strong mark requiring a high degree of protection.

What is a trademark?

- A trademark is a distinctive sign or indicator used by a business organization to distinguish its products or services from those of other entities.
- It serves as a badge of origin exclusively identifying a particular business as a source of goods or services.
- Trademark infringement is the unauthorized usage of a sign that is identical or deceptively similar to a registered trademark.

What is a strong trademark?

- A mark is said to be strong when it is well-known and has acquired a high degree of goodwill.
- The degree of the protection of any trademark changes with the strength of the mark; the stronger the mark, the higher the requirement to protect it.
- "Rooh Afza requires more protection as it is more likely to be subjected to piracy by those who seek to draw an undue advantage of it. They have a total area of approximately 244,100 km² and drop from 183 m above sea

level at Lake Superior to 74 m at Lake Ontario the most dramatic drop occurring at Niagara Falls.

- Lake St Clair, while not properly a "great lake," is considered part of this Laurentian chain goodwill", the judgment said.

THE HINDU

Great lake



- The Great Lakes are the largest group in a chain of large lakes (including Winnipeg, Athabasca, Great Slave, and Great Bear) that lies along the southern boundary of the Canadian Shield.
- From west to east the Great Lakes comprise lakes Superior, Michigan

(entirely in the US), Huron, St. Clair, Erie, and Ontario.

- They have a total area of approximately 244,100 km² and drop from 183 m above sea level at Lake Superior to 74 m at Lake Ontario the most dramatic drop occurring at Niagara Falls.
- Lake St Clair, while not properly a “great lake,” is considered part of this Laurentian chain.
- The Great Lakes lie near the intersection of the Hudson Bay, Mississippi River and St. Lawrence River drainage basins.

THE HINDU

GES
REPORTER

Migration pattern

- This year, International Migrants Day (observed annually on December 18) must be seen in the backdrop of unprecedented volatility that began in 2020 as a result of the COVID-19 pandemic.
- Besides this infectious disease outbreak, there were events such as the Taliban takeover of Afghanistan, Russia's invasion of Ukraine, worsening poverty in the sub-Saharan region, and also climate change, resulting in large-scale migration.
- According to the International Organization of Migration (IOM)'s World Migration Report 2022, there were 281 million international migrants globally in 2020, with nearly two-thirds being labor migrants.
- While there were 169 million labor migrants in 2019, the figure touched 164 million in 2020.
- In the larger pool of migrants, South Asia's share is nearly 40%; further, the South Asia-Gulf Migratory corridor is the world's largest migrant corridor.
- Long-term data on international migration show that "migration is not uniform across the world and is shaped by economic, geographic, demographic and other factors, resulting in distinct migration patterns, such as migration corridors developed over many years".
- Recently, there were cases of around 300 Indian engineers from Tamil Nadu who were trafficked to Myanmar to work for a crypto-scam and nearly 20 Indian nurses were trafficked to the United Arab Emirates for fake job offers.
- Despite India being the largest migrant-sending and remittance-receiving country, the welfare of Indian migrants abroad is hardly a priority for the Government and policymakers.
- It is a matter of serious concern that India has yet to have a tangible and comprehensive migration policy to ensure decent living and safe movement of migrants.
- India manages or governs Indians migrating abroad using the Emigration Act, of 1983.
- The COVID-19 pandemic has exposed the existing exploitative nature of the Kafala system (a 'sponsorship system that regulates the relationship between employers and migrant workers) which has invariably resulted in the mass retrenchment of the labor force.
- Presently, South Asian countries, including their civil society

organizations, scholars, and migrant activists are leading a 'justice for wage theft' campaign for the disbursement of the pending salary benefits and other related dues of labor.

- The recurring problems that migrant labourers face are irregular payment, poor working conditions, the negation of labor rights, the absence of proper grievance redress mechanisms, and access to a transparent judicial system.
- Irregular payment and non-payment of wages, and abuse at the workplace have been a long-term problems in the GCC countries.

Focus on women workers

- Attention needs to be focussed on the women migrant workforce, largely limited to GCC countries and also to the Organisation for Economic Co-operation and Development countries to some extent.
- Interestingly, Indian nurses and care-givers have been working in the most volatile countries such as Iraq, Syria, Libya, Yemen, Israel, and even remote Papua New Guinea.
- The United Nations, through its non-binding resolution, "Global Compact for Safe, Orderly Migration and Regular Migration", recognises

the challenges migrant labour faces across the world.

India Africa and the USA

- India, through the G20 presidency, intends to be remembered as the voice of the Global South at the heart of which is Africa.
- Most of the 54 countries of this continent are developing or least developed countries.

Washington summit

- The second U.S.-Africa summit was held in Washington from December 13 to 15.
- The leaders also deliberated on the ways to mitigate the impact of COVID-19 and future pandemics, respond to the climate crisis, promote food security and deepen diasporic ties.
- First, the U.S. announced its support for the AU to join the G20 as a permanent member.
- Second, the U.S. said it "fully supports" reforming the UN Security Council (UNSC) to include permanent representation for Africa.
- The U.S. announced new investments and initiatives, including \$21 billion to the International Monetary Fund to provide access to necessary

financing for low -and middle -income countries, and \$10 million for a pilot programme to boost the security capacity of its African partners.

THE HINDU

China's shadows

- China, on the other hand, has emerged as the largest trading partner and the fourth largest investor in the African continent, ahead of the U.S., through its steady diplomacy and extensive economic engagement.
- The U.S. and other nations can take a cue from the Forum on China-Africa Cooperation (FOCAC), established in October 2000.
- China has a full-fledged inter-ministerial mechanism to ensure the timely implementation of FOCAC decisions.

Implications for India

- India's equity in Africa is older and richer than that of China and the U.S
- The G20 presidency is India's opportunity to ensure that the AU becomes a permanent member of this grouping and to reflect firmly Africa's Agenda 2063 for development.

- India and the U.S. should work closer together in Africa.
- Finally, the fourth India Africa Forum Summit should be held in early 2024, lest the third summit held in 2015 becomes a distant memory.

THE HINDU

CERVICAL CANCER

The story so far:

- The government has announced that it will roll out vaccines for the prevention of cervical cancer to girls aged between 9 and 14 years through schools.
- The National Technical Advisory Group for Immunisation (NTAGI) recommended the introduction of the Human Papillomavirus (HPV) vaccine in the Universal Immunisation Programme (UIP)

Why is it important to launch the HPV vaccine?

- Cervical cancer is preventable and curable if it is detected early and managed effectively.
- It is the second most common cancer in women in India, and the cause of a large number of deaths annually.
- It is caused by infection with the human papillomavirus, and there are vaccines to protect against cancerous HPV.

- A recent study in The Lancet shows that more than 58% of all cases of cervical cancer and deaths globally were estimated in Asia with India accounting for 21% of cases and 23% of deaths, followed by China (18% and 17%).

What are the challenges?

- The study identified substantial geographical and socioeconomic inequalities in cervical cancer globally, with a clear gradient of increasing rates for countries with lower levels of human development.
- In 2022, India ranked 132 out of 191 countries on the Human Development Index.
- However, health experts say the fact that India's fertility rate is declining due to a variety of factors, including improved literacy rate, increase in the age of marriage, and so forth, and should prompt everyone in the ecosystem, from the government, doctors to ground level health workers to launch campaigns on cervical cancer awareness, push vaccinations and screening for all girls.

THE HINDU

CAG Report on NRC

The story so far:

- A recent Comptroller and Auditor-General of India (CAG) report on the update exercise of the National Register of Citizens (NRC) in Assam has flagged serious irregularities, including "haphazard development" of software for the exercise, making it prone to data tampering, and flagged undue profits worth crores amassed by the system integrator (SI) by violating the Minimum Wages Act.
- The auditor flagged concerns in a compliance report of 'logistical arrangements for NRC update project in Assam' tabled in the Assam Assembly on December 24.

What is the NRC exercise?

- An NRC was first created in 1951 in Assam to identify those born in India and migrants from erstwhile East Pakistan, now Bangladesh.
- In 2013, the Supreme Court issued directions to the Centre and State to initiate an exercise in Assam to update the 1951 register.

What are the CAG's concerns?

- At the time, the process to update the NRC was started in December 2014 with a deadline for completion

in February 2015 and the project cost was pegged at ₹288.18 crores.

- There was, however, a five- fold increase in the cost by March 2022 due to additional time to complete it and changes in the updated software.
- The CAG stated that the intended objective of preparing a valid and error -free NRC was not met despite incurring excess expenditure

What has the CAG recommended?

- The country's top auditor sought penal measures against Wipro Limited for violating the provisions of the Minimum Wages Act and for paying data operators less than minimum wages.
- Secondly, the report recommended action against the State Coordinator of National Registration (SCNR) for "excess, irregular and inadmissible payments"
- **THE HINDU**

Delimitation Commission

- Delimitation literally means the act or process of fixing limits or boundaries of territorial constituencies in a country or a province having a legislative body. The job of delimitation is assigned to a high-power body. Such a body is

known as Delimitation Commission or a Boundary Commission

- In India, such Delimitation Commissions have been constituted 4 times in 1952 under the Delimitation Commission Act, 1952, in 1963 under Delimitation Commission Act, 1962, in 1973 under Delimitation Act, 1972, and in 2002 under Delimitation Act, 2002.
- The Delimitation Commission in India is a high-power body whose orders have the force of law and cannot be called into question before any court. These orders come into force on a date to be specified by the President of India on this behalf.
- The copies of its orders are laid before the House of the People and the State Legislative Assembly concerned, but no modifications are permissible therein by them.

THE HINDU

POPULATION CONTROL

- While there has been a significant rise in India's population, there has also been a sharp decline in India's total fertility rate (TFR).
- In 1950, the TFR was at around 5.9%, and is now 2% (fifth round of the National Family Health Survey, or NFHS)
- India's TFR, 2%, is even lower than the replacement level, signifying a remarkable step in the population control parameters.
- Forced population control measures have not shown promising results in the countries that have implemented them, the most relevant example being India's immediate neighbour, China.
- The one-child policy has proved to be disastrous, causing a demographic imbalance.
- The population of China is aging faster than in any other modern country, owing to the policies of forced population control.
- India needs to adopt population control measures. But the focus should be on strengthening public health infrastructure and raising awareness about the need for population control.
- Any forced control method will impact the rate of aging.
- United Nations data show that there is a projected rise in the population

of older people and a decline in the young population in many countries.

- Although the trend started in rich countries such as Japan, the trend is now visible in developing countries as well, especially in Southeast Asia.

THE HINDU

Export decline

- A part of the import bill dip was triggered by lower non -oil cargo, signalling slowing domestic demand, but non -oil exports' performance is a greater worry.
- Their share in exports growth has been shrinking since June, with the contraction accelerating for many sectors from September to November engineering goods which drove much of India's record \$422 billion goods exports in 2021-22, contracted 11.3% while textiles fell a steeper 25%
- Services exports and remittance inflows may cushion India's current account deficit from the goods trade imbalance and restrict the economy's external vulnerabilities, but policymakers need to focus on ensuring a soft landing for factories in export-intensive sectors that are also massive employers so that the global gloom does not hit domestic sentiment.
- In recent weeks, the Government belatedly scrapped the export duty

on steel and iron ore, which was hurting engineering exports too, and brought them under a tax refund scheme with thus- far excluded sectors like drugs and chemicals.

THE HINDU

Decriminalization and governance

- Union Government tabled the Jan Vishwas Bill, 2022, (Bill) in the Parliament with the objective of “decriminalizing” 183 offenses across 42 legislations and enhancing the ease of living and doing business in India.

Scope of the Bill

- The Jan Vishwas Bill either omits penal provisions or replaces them with fines in legislations such as the Air Act, Environment Protection Act, Forest Act, Drugs and Cosmetics Acts, Cinematograph Act, Patents Act, Trade Marks Act, and Information Technology Act amongst several others.
- These are primarily offenses that are regulatory in nature.
- By and large, an examination of the provisions of the Bill reveals that stress has been on the replacement of imprisonment clauses with fines.
- This can hardly be termed as ‘decriminalization’.

Consequences of over criminalization

- An unprincipled growth of criminal law has long been a cause of concern for scholars of law.
- Such growth is evident from the fact that criminal law is frequently used as a political tool; the act of criminalization often becomes a medium for governments to put across a strong image as opposed to punishing wrongful conduct.
- Governments offer little in the way of justifications to support such decisions.
- This phenomenon has been termed “over criminalisation”.
- The growing number of pending criminal cases shares a direct relationship with the number of criminal laws.
- Similarly, the rise in the prison population is also proof of over-criminalization.

THE HINDU

Single cigarette ban

The story so far:

- The Parliamentary Standing Committee on Health and Family Welfare, in its latest report about cancer management, prevention and diagnosis, recommended that the government institute a ban on the sale of single sticks of cigarettes.

- It also recommended that the government increase taxes on all tobacco products and utilize the acquired revenue for cancer prevention and awareness.
- It recommends that the government prohibit the sale of single sticks of cigarettes and suggests the abolition of all designated smoking areas in airports, hotels, and restaurants in addition to encouraging a smoke-free policy in organizations.
- The Committee also found that India has the lowest prices for tobacco products and thus, it must look to increase taxes on them.
- These measures flow from the observation that oral cancer accounts for the highest proportion of cancer cases in the country.
- Additionally, the committee also sought a ban on gutkaiip and pan masala alongside a prohibition on their direct and indirect advertisement
- Single-stick sales, owing to their easier accessibility and affordability, can also work as a disincentive to quit smoking.
- The authority is laid down in a parent act of parliament, known as an 'enabling act' that creates the structure of the law and then delegates powers to others to make more detailed laws in the area.
- Delegated legislation, including rules and regulations formed by the State and Central authorities, should not supplant but supplement the parliamentary statute from which it draws power, the Supreme Court held in a judgment.
- "If a rule goes beyond the rule-making power conferred by the statute, the same has to be declared invalid.
- If a rule supplants any provision for which power has not been conferred, it becomes invalid," a
- A delegated power to legislate by making rules or regulations cannot be exercised so as to bring into existence substantive rights, obligations, or disabilities not contemplated by the provisions of the parent statute.

THE HINDU

THE HINDU

Delegated legislation

India's stack

- Delegated legislation is a law made by some person or body other than parliament, but with the permission of parliament.
- What is India Stack?
- India Stack is a set of APIs that allows governments, businesses, startups, and developers to utilize a unique digital Infrastructure to solve India's hard problems towards presence-

less, paperless, and cashless service delivery.

- The Open API team at iSPIRT has been a pro-bono partner in the development, evolution, and evangelization of these APIs and systems.

Technology layers

- The four distinct technology layers provided are
- Presenceless layer: Where a universal biometric digital identity allows people to participate in any service from anywhere in the country.
- Paperless layer: Where digital records move with an individual's digital identity, eliminating the need for a massive amount of paper collection and storage.
- Cashless layer: Where a single interface to all the country's bank accounts and wallets to democratize payments.
- Consent layer: This allows data to move freely and securely to democratize the market for data.

APIs included in India Stack

- The following APIs are considered to be a core part of the India Stack.
- Aadhaar Authentication
- Aadhaar e-KYC
- eSign
- Digital Locker
- Unified Payment Interface (UPI)

- Digital User Consent - still a work in progress.

- The following APIs are also considered to be societal platforms built on similar principles like India Stack:

- GSTN - The Goods and Services Tax Network
- BBPS - The Bharat Bill Payment System
- ETC - Electronic Toll Collection (known under the brand FASTag)

Utility

- Citizens: Brings millions of Indians into the formal economy by reducing friction.
- Software ecosystem: Fosters innovation to build products for Financial Inclusion, healthcare & educational services at scale.
- Government: This brings a paradigm shift in the way government services are delivered in a transparent, accountable, and leakage-free model.

THE HINDU

V-shaped recovery

- A V-shaped recovery is characterized by a quick and sustained recovery in measures of economic performance after a sharp economic decline.
- Because of the speed of economic adjustment and recovery in macroeconomic performance, a V-

shaped recovery is a best-case scenario given the recession.

THE HINDU

GES
REPORTER

Kalasa Banduri project

- The water disputes in India stem from a lack of a similar cooperation.
- The conflict on the Mandovi / Mahadayi River flowing through Goa, Karnataka and Maharashtra is one such example.
- The Kalasa-Banduri Project undertaken by the Karnataka government proposes to divert Mandovi river water from Kalasa and Banduri canals into the Malaprabha River in the state to facilitate drinking water to 13 towns of Dharwad, Belagavi, Bagalkote, and Gadag.
- The entire project aims to construct a total of 11 dams on the river Mandovi.
- The diversion of water from Kalasa and Banduri nullahs, however, has been the point of contention between Karnataka and Goa, with the latter claiming it would strip the state of its flora and fauna.

The conflict

- The Mandovi originates from Karnataka's Belgaum district.
- The Mandovi river basin falls into the states of Goa, Karnataka, and Maharashtra.
- The river is 81 kilometers (km) in length; 35 km of which flows in

Karnataka, 1 km in Maharashtra, and 45 km in Goa.

- The seeds of the conflict were sowed over 40 years ago: In 1985, Karnataka initially explored a 350 megawatt-hydro-electric project to divert 50 percent of the Mandovi river water in Karnataka for irrigation.
- The plan was also to allow a steady flow of water from the power project's storage dam after using the water for irrigation purposes in Karnataka.
- This would have served to drink water and irrigation purposes in Goa as well.

THE HINDU

Voice technology

- Voice Technology (VT), encompasses voice biometrics or voice/speech recognition technology.
- The global adoption of smartphones has led to a dramatic increase in biometrics for security.
- However, these methods are cumbersome, not entirely secure, and vulnerable to deep fakes.
- The technology creates a digital voiceprint and compares it to a caller's voice.
- Voice authentication can significantly improve security over

knowledge -based authentication methods, which fraudsters have exploited to scam people.

- Compared to other biometrics, voice use is the cheapest technology, and does not require a reader or special device.
- It is also non-invasive, portable, and affords remote identification.
- The police can leverage voice to improve investigation efficiency, identify criminals, track criminals, and better respond to and prevent crimes.
- Not surprisingly, voice is finding use in criminal background checks to airport security
- Voice has a much lower error rate and requires no eye contact.
- VT has the advantage of improving user experience, reducing call handle times and call center costs, besides ensuring high accuracy authentication in seconds.
- It also has the ability to resist playback attacks.
- The technology is sensitive enough to detect if someone is impersonating the user or playing a recording.
- It can identify even if the user has a cold or a sore throat.
- Voice could be an excellent tool for the Government to disburse money for various schemes and verify the

proof of life of pensioners from their homes.

- Voice biometrics tech is making waves in the world of fraud protection by providing an extra layer of protection for data.

THE HINDU

Karnataka -Maharashtra dispute

The story so far:

- The border town of Belagavi has been a part of Karnataka since boundaries were demarcated along linguistic lines under the State's Reorganisation Act, 1956.
- But the inter-State border dispute between Karnataka and Maharashtra erupts every now and then.

What are the claims of the two States?

- The raging boundary dispute between the two States dates back to the reorganization of States along linguistic lines.
- In 1957, unhappy with the demarcation of boundaries, Maharashtra demanded realignment of its border with Karnataka.
- It invoked Section 21 (2)(b) of the Act, submitting a memorandum to

the Union Ministry of Home Affairs stating its objection to Marathi-speaking areas being included in Karnataka.

- It filed a petition in the Supreme Court staking a claim over Belagavi.
- Karnataka has argued that the inclusion of Belagavi as part of its territory is beyond dispute.
- It has cited the demarcation done on linguistic lines as per the Act and the 1967 Mahajan Commission Report to substantiate its position.
- Karnataka has argued for the inclusion of areas in Kolhapur, Sholapur, and Sangli districts (falling under Maharashtra) in its territory.
- Since 2006, Karnataka started holding the winter session of the Legislature in Belagavi, building the massive Suvarna Vidhana Soudha in the district headquarters to reassert its claim.

What were the terms of the Mahajan Commission?

- In 1966, at Maharashtra's insistence, the then Prime Minister Indira Gandhi established a one-man commission led by Mehr Chand Mahajan, which recommended that 264 villages be transferred to Maharashtra and that Belagavi (Belgaum) and 247 villages remain with Karnataka.

- Maharashtra rejected the report, while Karnataka welcomed it.

THE HINDU

BCAS

- The Bureau of Civil Aviation Security was initially set up as a Cell in the Directorate General of Civil Aviation (DGCA) in January 1978 on the recommendation of the Pande Committee constituted in the wake of the hijacking of the Indian Airlines flight on 10th September 1976.
- The role of the Cell was to coordinate, monitor, inspect and train personnel in Civil Aviation Security matters.
- The BCAS was reorganized into an independent department on 1st April 1987 under the Ministry of Civil Aviation as a sequel to the Kanishka Tragedy in June 1985.
- The main responsibility of BCAS is to lay down standards and measures in respect of the security of civil flights at International and domestic airports in India.
- Laying down Aviation Security Standards in accordance with Annex 17 to the Chicago Convention of ICAO for airport operators, airline operators, and their security agencies responsible for implementing AVSEC measures.

- Monitoring the implementation of security rules and regulations and carrying out surveys of security needs.
- Ensure that the persons implementing security controls are appropriately trained and possess all competencies required to perform their duties.
- Planning and coordination of Aviation security matters.

Conducting

- Surprise/Dummy checks to test the professional efficiency and alertness of security staff.
- Mock exercise to test the efficacy of Contingency Plans and operational preparedness of the various agencies.

THE HINDU

RVM

- The Election Commission (EC) on Thursday announced the development of a prototype of a multi-constituency remote electronic voting machine (RVM) to enable remote voting by migrant voters.
- The Election Commission of India (ECI) has developed a prototype for the Remote Electronic Voting Machine (RVM) aimed to facilitate

voting for domestic migrants across India.

- The ECI is undertaking this major move to increase voter participation.
- "After focusing on youth and urban apathy, remote voting will be a transformational initiative for strengthening participation in electoral democracy,"
- The multi-constituency remote EVM, developed by a public sector undertaking, can handle up to 72 constituencies from a single remote polling booth, the statement issued by the poll watchdog said.
- The ECI "has now explored the option of using a modified version of the time-tested model of M3 (Mark 3) EVMs to enable voting at remote polling stations outside the home constituency, for domestic migrants.
- The concept note also highlights the challenges of defining domestic migrants, enumerating remote voters, and implementing of the Model Code of Conduct at remote polling booths in other states.
- -Ensuring secrecy of voting, facility of polling agents for identification of voters, and process and method of remote voting and counting of votes, are among the other issues identified by the note.

- The Representation of the People Act, 1950 and 1951, The Conduct of Election Rules, 1961, and The Registration of Electors Rules, 1960, will need to be amended to introduce remote voting.

Why do we need RVM?

- Though there is no central database available for migration within the country, the analysis of available data in the public domain points to work, marriage, and education-related migration as important components of domestic migration.
- "Out-migration" is predominant among the rural population in overall domestic migration and around 85% of the internal migration is within states.

THE HINDU

Ethylene glycol

- The Uttar Pradesh Drug Control and the Central Drugs Standards Control Organisation (CDSCO) are investigating Marion Biotech after Uzbekistan linked the deaths of 18 children to a "contaminated" cough syrup made by the Noida-based firm.
- The ministry said that colorless tests of odorless batch of the medicine contained ethylene glycol, a toxic substance.

- What is ethylene glycol?
- Ethylene glycol is a colorless and odorless alcoholic compound that can be fatal if consumed.
- The sweet-tasting ethylene glycol is fibre supply or viscous liquid at room temperature,
- It is mostly used as an automotive antifreeze and as a raw material for manufacturing polyester fibres.
- It is also found in several products such as hydraulic brake fluids, stamp pad inks, ballpoint pens, solvents, paints, cosmetics, and plastics.
- Diethylene glycol and ethylene glycol are adulterants that are sometimes illegally used as solvents in liquid drugs.
- Diethylene glycol and ethylene glycol may be used by pharma companies as an alternative to non-toxic solvents such as glycerine or propylene glycol to cut costs.
- The ingestion of ethylene glycol can cause severe health effects.

THE HINDU



Butterfly mimic

- In a five -year study, scientists of the National Centre for Biological Sciences (NCBS) in Bengaluru have discovered secrets of a long evolutionary game through which butterflies come to warn, fool, and escape their predators using traits such as wing colour patterns and even flight behavior.
- Mimicry is an adaptive phenomenon, and in mimicry, a palatable organism resembles an unpalatable organism to deceive predators.
- Palatable species are agreeable to the palate or taste and are preferred by grazing animals or predators
- “The unpalatable one is called models (Müllerian co-models) and the palatable one is called mimics (Batesian mimics).
- Interestingly, mimicry in butterflies is not limited to the resemblance in wing color patterns alone, as some mimics have also evolved to imitate the flight behaviors of model species.
- In nature, multiple models and mimic butterflies could be found in the same habitat at the same time.
- These similar -looking co-occurring butterflies together form a mimetic community,”

About Model species

- A model organism is a non-human species that is extensively studied to understand particular biological phenomena, with the expectation that discoveries made in the model organism will provide insight into the workings of other organisms.

What are cloud services??

- Cloud services are infrastructure, platforms, or software that are hosted by third-party providers and made available to users through the internet.
- All infrastructure, platforms, software, or technologies that user’s access through the internet without requiring additional software downloads can be considered cloud computing services including the following as-a-Service solutions.
- Infrastructure-as-a-Service (IaaS) provides users with computing, networking, and storage resources
- Platforms-as-a-Service (PaaS) provides users with a platform on which applications can run, as well as all the IT infrastructure required for it to run.
- Software-as-a-Service (SaaS) provides users with essentially a cloud application, the platform on which it runs, and the platform’s underlying infrastructure.

- Function-as-a-Service (FaaS), an event-driven execution model, lets developers build, run, and manage app packages as functions without maintaining the infrastructure.

THE HINDU

Foreign reserve decline

- Foreign Exchange Reserves
- Foreign exchange reserves are assets held on reserve by a central bank in foreign currencies, which can include bonds, treasury bills, and other government securities.
- It needs to be noted that most foreign exchange reserves are held in U.S. dollars.
- These assets serve many purposes but are most significantly held to ensure that the central bank has backup funds if the national currency rapidly devalues or becomes altogether insolvent.

India's Forex Reserve includes:

- Foreign Currency Assets
- Gold reserves
- Special Drawing Rights
- Reserve position with the (IMF)
- India's forex reserves dropped by \$691 million to \$562.808 billion
- The reserves had been declining as the central bank deployed the reserve to defend the rupee amid

pressures caused majorly by global developments.

- The decline in India's foreign exchange reserves is largely due to the valuation changes arising from an appreciating U.S. dollar.

THE HINDU

Gold demand

- The Commerce Ministry has sought a reduction in the import duty on gold in the forthcoming Budget with a view to push exports and manufacturing of the gems and jewellery sector, sources said.
- In July this year, the Centre raised gold import duty to 15% from 10.75% to check the current account deficit (CAD) and rising import of the yellow metal.
- The purchase of gold from foreign dealers for billions of dollars has resulted in Indian cash being sent overseas and a disruption in the balance of funds coming in and going out of the nation, thus bringing down the rupee's value.
- Gold imports directly affect the current account deficit (CAD) of India
- As a thumb rule, the larger the CAD with respect to GDP, the riskier it is for the overall economy.
- The country is presently the largest importer of gold on the planet,

consuming one-third of the planet's supply on an annual basis.

- In fact, gold is the second-most purchased overseas commodity after oil.

THE HINDU

Fiscal deficit

What is a Fiscal deficit?

- A fiscal deficit is defined as the difference between the total revenue and total expenditure of the government.
- It helps indicate the total borrowing that the government would need in a particular financial year.

Why is fiscal deficit important for the economy?

- When it comes to the impact of fiscal deficits, there are various opposing perspectives.
- On one hand, it is believed that fiscal deficits can boost a sluggish economy by increasing the spending power of people for investment.
- However, on the other hand, it is also believed that long-term deficits can negatively impact economic growth and stability.
- The fiscal deficit is keenly observed during the Union Budget presentation as it can impact various factors such as growth, stability of

price, production costs, and inflation.

- If the fiscal deficit is large enough, it can also affect the country's ratings.
- For instance, when the government continues borrowing and stops printing currency notes, there is an upwards pressure on interest rates. Increased interest rates then result in increased production costs which lead to higher prices.
- However, the impact of fiscal deficit on inflation depends on the kind of expenditure undertaken by the government
- For instance, if the government spends on productive investments that take care of both supply and demand, the impact might be reduced.
- Fiscal deficits can help a slow economy, especially if the money is spent on productive assets that create investment and job opportunities.
- Keynes advocated a countercyclical fiscal policy during periods of economic woe.
- During such times, the government should undertake deficit spending to make up for the decline in investment and boost consumer spending in order to stabilize aggregate demand.

THE HINDU



DO YOU KNOW ?

Naegleria fowleri

Amoeba is a unicellular free-living organism. Since it has no cell wall, it moves freely in the environment like water bodies and feeds on other bacteria or dead organisms. Brain-eating amoeba *Naegleria fowleri*, colloquially known as a 'brain-eating amoeba', is a species of the genus *Naegleria*.

Naegleria fowleri infects people when the people take a dip in not well-maintained pools/river. The water containing the amoeba enters the body through the nose. *Naegleria fowleri* infection cannot be spread from one person to another.



RESOLVE2023: NEW YEAR OFFER ALERT FOR ALL GOALS!

This new year we are offering a flat 23% off on all goals and all subscriptions

The Limited Period Offer starts
on 28th Dec

Visit
unacademy.com
Select UPSC CSE



USE CODE
SPLIVE

*T & C apply, as available on the platform