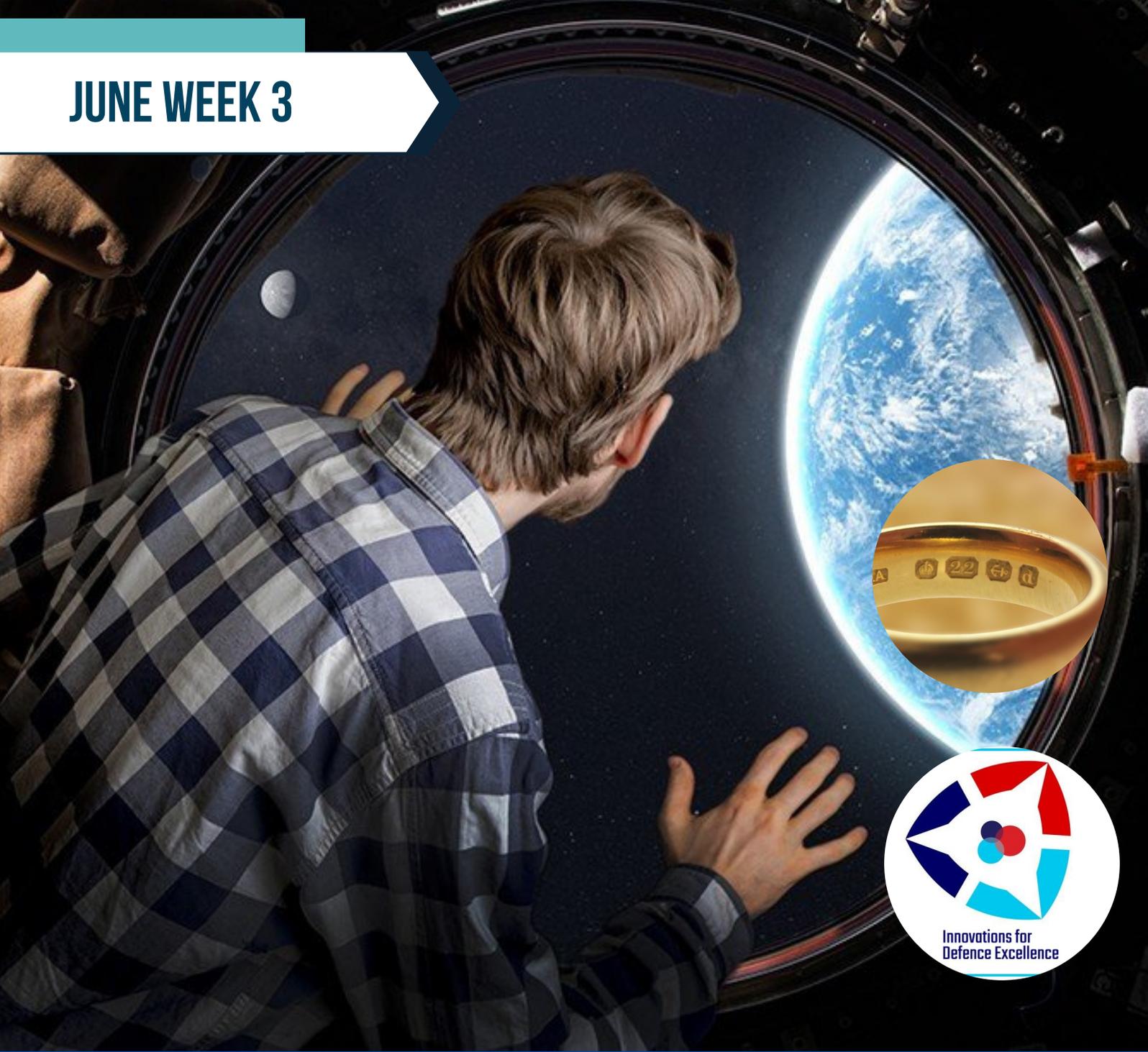


# PRAYAS 4 IAS

AN INITIATIVE BY THE PRAYAS INDIA

JUNE WEEK 3



## June (Week 3)

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# Prelims

## NATIONAL

### Operation Olivia

(Source: [The Hindu](#) )

**Context:** Every year, the Indian Coast Guard's "Operation Olivia", initiated in the early 1980s, helps protect Olive Ridley turtles as they congregate along the Odisha coast for breeding and nesting from November to December.

#### Details:

- The Olive Ridley (*Lepidochelys olivacea*) is listed as vulnerable under the International Union for Conservation of Nature's Red list.
- All five species of sea turtles found in India are included in Schedule I of the Indian Wildlife Protection Act, 1972, and in the Appendix I of the Convention of International Trade in Endangered Species of Wild Fauna and Flora which prohibits trade in turtle products by signatory countries.
- The Orissa Marine Fisheries Act empowers the Coast Guard as one of its enforcement agencies.
- Dense fishing activity along the coasts of Andhra Pradesh, Odisha and Bengal, especially ocean-going trawlers, mechanised fishing boats and gill-netters pose a severe threat to turtles.
- Coordination of efforts is done at various levels, the officer explained, including enforcing the use of turtle excluder devices (TED) by trawlers in the waters adjoining nesting areas; prohibiting the use of gill nets on turtle approaches to the shore; and curtailing turtle poaching.

#### Olive Ridley

- The **Olive ridley turtles are the smallest and most abundant of all sea turtles** found in the world, inhabiting warm waters of the Pacific, Atlantic and Indian oceans.
- They are best known for their unique mass nesting called **Arribada**, where thousands of females come together on the same beach to lay eggs.
- The species is listed as **Vulnerable in the IUCN Red List, Appendix 1 in CITES, and Schedule 1 in Wildlife Protection Act, 1972.**
- Olive-ridleys **face serious threats** across their migratory route, habitat and nesting beaches, due to human activities such as **unfriendly turtle fishing practices, development, and exploitation of nesting beaches for ports, and tourist centers.**

### Pyrostria laljii

(Source: [The Hindu](#) )

**Context:** A 15-metre-tall tree that belongs to the genus of the coffee family has recently been discovered from the Andaman Islands by a team of researchers from India and the Philippines. The new species, *Pyrostria laljii*, is also the first record of the genus *Pyrostria* in India.

#### Details:



- Plants belonging to genus *Pyrostria* are usually found in Madagascar, but the recently discovered species is new to science.
- The tree is distinguished by a long stem with a whitish coating on the trunk and oblong-obovate leaves with a cuneate base, and was first reported from the Wandoor forest in South Andaman.
- The other places in the Andaman and Nicobar Islands where the tree could be located are the Tirur forest near the Jarawa Reserve Forest and the Chidia Tapu (Munda Pahar) forest.
- *Pyrostria laljii* has been assessed as 'Critically Endangered' based on the International Union for Conservation of Nature's (IUCN) Red List criteria.
- The species has been named *Pyrostria laljii* after Lal Ji Singh, Joint Director and Head of Office, Andaman and Nicobar Regional Centre, Botanical Survey of India.
- Other physical features that distinguish the tree from other species of the genus is its umbellate inflorescence with eight to 12 flowers.

### **Tulu language**

(Source: [Indian Express](#) )

**Context:** *The Tulu speakers, mainly in Karnataka and Kerala, have been requesting the governments to give it official language status and include it in the eighth schedule to the Constitution. Various organisations initiated a Twitter campaign demanding official language status to Tulu in Karnataka and Kerala and received an overwhelming response.*

#### **Who all speak Tulu in India now and what is its history?**

- Tulu is a Dravidian language spoken mainly in two coastal districts Dakshina Kannada and Udupi of Karnataka and Kasaragod district of Kerala.
- As per the 2011 Census report, there are 18,46,427 Tulu-speaking people in India. Some scholars suggest Tulu is among the earliest Dravidian languages with a history of 2000 years.
- Robert Caldwell (1814-1891), in his book, A Comparative Grammar of the Dravidian or South-Indian Family of Languages, called Tulu "one of the most highly developed languages of the Dravidian family".

#### **What exactly is the demand by Tulu speakers?**

- The Tulu speakers, mainly in Karnataka and Kerala, have been requesting the governments to give it official language status and include it in the eighth schedule to the Constitution.
- Assamese, Bengali, Gujarati, Hindi, Kannada, Kashmiri, Konkani, Malayalam, Manipuri, Marathi, Nepali, Oriya, Punjabi, Sanskrit, Sindhi, Tamil, Telugu, Urdu, Bodo, Santhali, Maithili and Dogri are the 22 languages presently in the eighth schedule to the Constitution.

#### **What is the present status of Tulu?**

- According to Karnataka Tulu Sahitya Academy president Dayananda G Kathalsar, people who speak Tulu are confined to the above-mentioned regions of Karnataka and Kerala, informally known as Tulu Nadu.
- At present, Tulu is not an official language in the country. Efforts are being made to include Tulu in the eighth schedule of the Constitution.
- If included in the eighth schedule, Tulu would get recognition from the Sahitya Akademi.

#### **The demand for separate statehood for Tulu Nadu**

- The political party ‘Tuluvere Paksha’, which got recognition from the Election Commission of India in February 2021 under section 29A of Representation of the People Act 1951, has given wings to the political aspirations of the Tulu-speaking people.
- Tulu has a rich oral literature tradition with folk-song forms like paddana, and traditional folk theatre yakshagana.
- Tulu also has an active tradition of cinema with around 5 to 7 Tulu language movies produced a year.
- Tulu films are being screened every day in Mangaluru and Udupi in at least one theatre.

### **Bharitalasuchus tapani**

(Source: [The Hindu](#) )

**Context:** *In the mid 20th century, researchers from the Indian Statistical Institute, Kolkata, carried out extensive studies on rocks of the Yerrapalli Formation in what is now Telangana, uncovering several fossils. By studying some of these specimens stored at the Institute, an international team has now thrown light on a carnivorous reptile that lived 240 million years ago.*

#### **Details:**

- This reptile belongs to a genus and species previously unknown to science. They named it Bharitalasuchus tapani.
- In the Telugu language, Bhari means huge, Tala means head, and Suchus is the name of the Egyptian crocodile-headed deity.
- The species is named after paleontologist Tapan Roy Chowdhury in honour of his contribution to Indian vertebrate paleontology and especially his extensive work on the Yerrapalli Formation tetrapod fauna.
- Further studies revealed that the reptile belonged to a family of extinct reptiles named Erythrosuchidae.
- The team notes that Bharitalasuchus tapani were robust animals with big heads and large teeth, and these probably predated other smaller reptiles.
- They were approximately the size of an adult male lion and might have been the largest predators in their ecosystems.

### **PASIPHAE**

(Source: [Indian Express](#) )

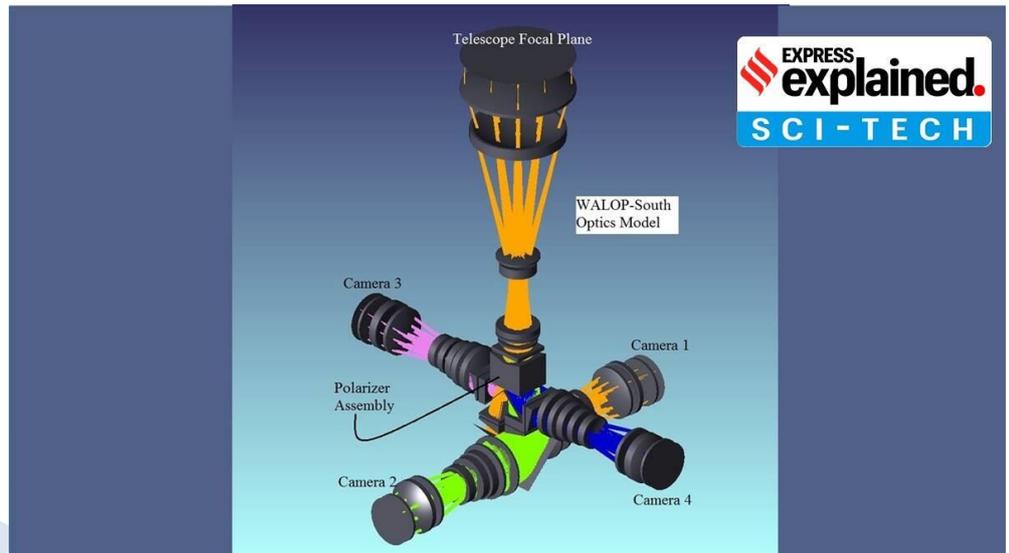
**Context:** *The mysteries surrounding the origin of the universe continue to draw human curiosity. The development of a vital instrument, which will be used in upcoming sky surveys to study stars, is being led by an Indian astronomer. The project has been funded by the world’s leading institutions, signalling India’s growing expertise in building complex astronomical instruments.*

#### **What is PASIPHAE?**

- Polar-Areas Stellar-Imaging in Polarisation High-Accuracy Experiment (PASIPHAE) is an international collaborative sky surveying project.
- Scientists aim to study the polarisation in the light coming from millions of stars.
- The name is inspired from Pasiphae, the daughter of Greek Sun God Helios, who was married to King Minos.
- The survey will use two high-tech optical polarimeters to observe the northern and southern skies, simultaneously.



- It will focus on capturing starlight polarisation of very faint stars that are so far away that polarisation signals from there have not been systematically studied. The distances to these stars will be obtained from measurements of the GAIA satellite.
- By combining these data, astronomers will perform a maiden magnetic field tomography mapping of the interstellar medium of very large areas of the sky using a novel polarimeter instrument known as WALOP (Wide Area Linear Optical Polarimeter).
- Scientists from the University of Crete, Greece, Caltech, USA, Inter-University Centre for Astronomy and Astrophysics (IUCAA), India, the South African Astronomical Observatory and the University of Oslo, Norway, are involved in this project, steered by the Institute of Astrophysics, Greece.
- The Infosys Foundation, India, Stavros Niarchos Foundation, Greece and USA's National Science Foundation have each provided a grant of \$1 million, combined with contributions from the European Research Council and the National Research Foundation in South Africa.



### What is WALOP?

- Wide Area Linear Optical Polarimeter (WALOP) is an instrument, when mounted on two small optical telescopes, that will be used to detect polarised light signals emerging from the stars along high galactic latitudes.
- A WALOP each will be mounted on the 1.3-metre Skinakas Observatory, Crete, and on the 1-metre telescope of the South African Astronomical Observatory located in Sutherland.
- In simple terms, the images will simultaneously have the finest of details of a star along with its panoramic background.
- WALOP will operate on the principle that at any given time, the data from a portion of the sky under observation will be split into four different channels.
- Depending on the manner in which light passes through the four channels, the polarisation value from the star is obtained. That is, each star will have four corresponding images which when stitched together will help calculate the desired polarisation value of a star.
- As the survey will focus on sky areas where very low polarisation values (<0.5 per cent) are expected to emerge, a polarimeter with high sensitivity and accuracy clubbed with a large field of view was needed, so WALOP was planned sometime in 2013.
- This was after the success of the RoboPol experiment survey during 2012-2017, in which some PASIPHAE collaborators were involved. Since then, the design, fabrication and assembly, led by Ramaprakash, is underway.
- WALOP and its predecessor RoboPol share the single shot photometry principle. But the 200 kg weighing WALOP will be capable of observing hundreds of stars concurrently present both in the northern and the southern skies as opposed to RoboPol, which has a much smaller field of view in the sky.
- Development of the instrument is in an advanced stage currently and progressing at the instrumentation facility in IUCAA.

## **Innovations for Defence Excellence (iDEX)**

(Source: [PIB](#) )

**Context:** Defence Minister has approved budgetary support of Rs 498.8 crore to Innovations for Defence Excellence (iDEX) – Defence Innovation Organisation (DIO) for the next five years.

### **What is iDEX?**

- iDEX was launched in 2018 to achieve self-reliance and foster innovation and technology development in the field of Defence and Aerospace by engaging MSMEs, start-ups, individual innovators, Research and Development institutes, academia, etc.
- iDEX will also provide them with grants/funding and other support to carry out R&D which has good potential for future adoption for Indian defence and aerospace needs.
- It was promulgated by the Department of Defence Production, Ministry of Defence.
- **Objectives of iDEX:**
  - Facilitate rapid development of new, indigenized, and innovative technologies for the Indian defence and aerospace sector, to meet needs for these sectors in shorter timelines.
  - Create a culture of engagement with innovative start-ups, to encourage co-creation for defence and aerospace sectors.
  - Empower a culture of technology co-creation and co-innovation within the defence and aerospace sectors.
- iDEX will be funded and managed by a ‘**Defence Innovation Organization (DIO)**’ which has been formed as a ‘not for profit’ company as per Section 8 of the Companies Act 2013 for this purpose, by the two founder members i.e. Defence Public Sector Undertakings (DPSUs) – HAL & BEL.
- iDEX will function as the executive arm of DIO, carrying out all the required activities while DIO will provide high-level policy guidance to iDEX.

## **Gold hallmarking**

(Source: [Indian Express](#) )

**Context:** The government on Tuesday announced the phased implementation of mandatory hallmarking of gold jewellery with effect from June 16. In the first phase, gold hallmarking will be available in only in 256 districts and jewellers having annual turnover above Rs 40 lakh will come under its purview.

### **What is hallmarking?**

- The Bureau of Indian Standard (BIS), which operates gold and silver hallmarking scheme in India, defines hallmarking as the “accurate determination and official recording of the proportionate content of precious metal in precious metal articles.”
- So, it is a “guarantee of purity or fineness” of precious metal articles.

### **Which metals are covered hallmarking in India?**

- The government, through a notification issued on June 14, 2018, notified two categories—gold jewellery and gold artefacts; and silver jewellery and silver artefacts—under the purview of hallmarking.
- So, hallmarking in India is available for jewellery of only two metals—gold and silver.



- However, a certain category of jewellery and items will be exempted from the mandatory requirement of hallmarking.
- According to the Department of Consumer Affairs, “Export and re-import of jewellery as per Trade Policy of Government of India — Jewellery for international exhibitions, jewellery for government-approved B2B domestic exhibitions will be exempted from mandatory Hallmarking.”
- The Ministry of Consumer Affairs, Food and Public Distribution said that watches, fountain pens and special types of jewellery such as Kundan, Polki and Jadau will be exempted from hallmarking.
- Union Minister for Consumer Affairs, Food and Public Distribution Piyush Goyal has said that “no penalty will be imposed till August 2021”.

### **What are the purity standards for gold and silver under the hallmarking scheme?**

- As per BIS standards, there are three categories of hallmarking based on purity of gold—22 carat, 18 carat and 14 carat.
- The ministry further said that jewellers can continue to buy back old gold jewellery without a hallmark from consumers.

### **What was the need of making hallmarking mandatory?**

- India is the biggest consumer of gold. However, the level of hallmarked jewellery is very low in the country.
- According to the ministry, at present, only 30% of Indian gold jewellery is hallmarked.
- One of the reasons responsible for low level of hallmarked jewellery is non-availability of sufficient assaying and hallmarking centres (A&HC).
- There are about only 35,879 jewellers across the country, who are certified by BIS. The number of A&HC is 945.
- According to the ministry, one A&H centre can hallmark 1500 articles in a day and the estimated hallmarking capacity of A&H centres per year is 14 crore articles.

## **Sankalp Se Siddhi – Mission Van Dhan**

(Source: [PIB](#) )

**Context:** *Minister for Tribal Affairs launched the tribal livelihoods initiative ‘Sankalp Se Siddhi – Mission Van Dhan’.*

### **About Sankalp Se Siddhi – Mission Van Dhan:**

- The mission was launched to promote local products manufactured by tribal artisans to ensure the sustainable livelihood of the tribal population across India.
- Through this, tribal people will get new employment opportunities and they themselves will be able to become entrepreneurs.
- TRIFED plans to expand its operations through convergence of various schemes of different Ministries and Departments and launch the various tribal development programs in Mission Mode under “Sankalp Se Siddhi – Mission Van Dhan” for expediting its implementation in a Mission mode.
- Now all the schemes of the Ministry of Tribal Affairs will be available on a single platform.

### **What is Van Dhan Scheme?**

- The scheme aims at the economic development of tribals involved in the collection of Minor Food Produces (MFPs) by helping them in optimum utilization of natural resources and providing them with a sustainable livelihood.



- Under this scheme, the Van Dhan Vikas Kendras constituted, provide skill up-gradation and capacity building training and setting up of primary processing and value addition facilities.

### Implementation of the Van Dhan Scheme

- The implementation of the Van Dhan Yojana is administrated through the Ministry of Tribal Affairs at different levels:

<b>National Level</b>	Nodal Department is the Ministry of Tribal Affairs
<b>Central Level</b>	The Nodal Agency is TRIFED India ( <i>Tribal Cooperative Marketing Development Federation of India</i> )
<b>State Level</b>	State Nodal Agencies for <b>Minor Forest Produce Schemes (MFP)</b> and District Collectors
<b>Unit Level</b>	An SHG consisting of approx 30 members to form a <i>Van Dhan Vikas Samuh</i> .

- The local *Van Dhan Vikas Kendras* are managed by a Managing Committee (a Self-Help Group) that consists of Van Dhan SHG representatives.
- At the unit level, the members of *Van Dhan Vikas Samuh* are then trained and provided with working capital to add value to the products, which they collect from the jungle.
- The tribals will be trained on sustainable harvesting, collection, primary processing, and value addition. They will be formed into clusters to aggregate their stock in tradable quantity and link them with the facility of primary processing in Van Dhan Vikas Kendra.
- These Kendras play a significant role in the economic progress and development of tribes. They also help the tribals utilize their natural resources in the best possible way providing them with a sustainable livelihood based on Minor Forest Produce from the MFP-rich areas.
- The central and state governments will provide necessary support by creating infrastructure and providing an enabling environment for undertaking value addition on systematic scientific lines.

### GeM SAHAY Platform

(Source: [PIB](#) )

**Context:** To address the credit access challenges faced by MSMEs a latest functionality is being rolled out specially for SMEs - the GeMSAHAY app.

### What is GeM SAHAY?

- The GeM-SAHAY portal can be utilised to provide frictionless financing for MSMEs on Government eMarketplace where they can get a loan at the point of acceptance of an order on the GeM platform.
- The country's leading lenders are associated with the SAHAY platform.
- With the portal, loan disbursement will be instantaneous, instead of the conventional in-principle approval of loan that may very often not culminate in an actual disbursal.
- The GeM SAHAY platform is 'lender agnostic', allowing for any lender, duly regulated by the Reserve Bank of India, to participate and provide capital and smart collection accounts to the sellers on GeM.
- Sellers applying for the loan facility will experience a seamless end to end digital experience with a mobile application.
- SAHAY project is being implemented by GeM in collaboration with the Indian Software Product Industry Round Table (iSPIRT), a non-profit tech think tank's volunteer team.



## Gujarat education Act

(Source: [Indian Express](#) )

**Context:** *The Gujarat Secondary and Higher Secondary Education (Amendment) Act, 2021, which has made it mandatory to clear Teachers' Aptitude Test (TAT) to become teachers and principals in minority educational institutions, has been challenged before the Gujarat High Court as "unconstitutional".*

### **What is the amendment?**

- The Gujarat Assembly passed the Gujarat Secondary and Higher Secondary Education (Amendment) Act, 2021 on March 31 during its budget session, which was notified by the state government on June 1.
- The amendment mandates minority institutions — both religious and linguistic — to follow a centralised recruitment policy of the state government which is applicable to all government and grant-in-aid secondary and higher secondary schools.
- The original Act, the Gujarat Secondary and Higher Secondary Education Act 1972, had exempted minority institutions based on religion and language from provisions of Clause 26 of Section 17 of the Act lays down qualifications, methods of selection and conditions of appointment, promotion and termination of employment and rules for conduct and discipline of the headmaster and the teaching and non teaching staff of registered private secondary schools.
- As per the amendment, “sub-section (1) of section 34 and clause (b) of sub-section (1) and sub section (2), (3), (4) and (5) of Section 36 shall not apply to any educational institutions established and administered by a minority, whether based on religion or language”.
- Section 36 pertains to the “appointment and dismissal, removal and reduction in rank of certain persons-head master, teacher or a member of non teaching staff of a registered private secondary school” while section 34 (1) stipulates “15 per cent of vacancies of teaching staff of a registered private secondary school shall be filled up by persons belonging to the scheduled castes and scheduled tribes. Provided that where a person belonging to a scheduled caste or scheduled tribe is not available for filling any such vacancy the vacancy shall be filled up as otherwise provided in this Act”.

## India to launch deep ocean mission

(Source: [The Hindu](#) )

**Context:** *The Union Cabinet has approved the long-pending deep ocean mission, which among other things involves developing a submersible vehicle that will allow a crew to plunge 6,000 metres into the ocean and hunt the floor for precious metals. If this works, India will be among a handful of countries able to launch an underwater mission at such depths.*

### **Details:**

- In the works since 2018, the mission is expected to cost ₹4,077 crore over the next five years. The estimated cost for the first phase of three years (2021-24) would be ₹2,823.4 crore.
- The Ministry of Earth Sciences (MoES) will be the nodal Ministry implementing this multi-institutional mission.
- There are six components to the programme. A manned submersible will be developed to carry three people to a depth of 6,000 metres in the ocean with a suite of scientific sensors and tools.
- An integrated mining system will be also developed for mining polymetallic nodules at those depths in the central Indian Ocean.
- The second component involves developing Ocean Climate Change Advisory Services, which entails developing a suite of observations and models to understand and provide future projections of important climate variables on seasonal to decadal time scales.

### Microbes, minerals

- The next component is searching for deep sea flora and fauna, including microbes, and studying ways to sustainably utilise them.
- The fourth component is to explore and identify potential sources of hydrothermal minerals that are sources of precious metals formed from the earth's crust along the Indian Ocean mid-oceanic ridges.
- The fifth component involves studying and preparing detailed engineering design for offshore Ocean Thermal Energy Conversion (OTEC) powered desalination plants.
- The final component is aimed at grooming experts in the field of ocean biology and engineering. This component aims to translate research into industrial applications and product development through on-site business incubator facilities.
- The Deep Ocean Mission was in 2019 envisaged as a ₹8,000 crore mission, as The Hindu has earlier reported. India has been allotted a site of 75,000 square kilometres in the Central Indian Ocean Basin (CIOB) by the UN International Sea Bed Authority for exploitation of polymetallic nodules (PMN). These are rocks scattered on the seabed containing iron, manganese, nickel and cobalt.
- Being able to lay hands on a fraction of that reserve can meet the energy requirement of India for the next 100 years, say officials at the Earth Sciences Ministry.

### HTBt cotton seeds

(Source: [The Hindu](#) )

**Contrxt:** *The illegal cultivation of herbicide-tolerant (HT) Bt cotton has seen a huge jump this year, with seed manufacturers claiming that the sale of illegal seed packets has more than doubled from 30 lakh last year to 75 lakh this year. Industry lobbies have written to the Agriculture Ministry, demanding that action be taken to stop such sales and punish offenders, noting that cultivation of the genetically modified cotton variant has serious environmental and economic consequences.*

### What are GM Crops?

- Genetically modified crops (GM crops) are plants used in agriculture, the DNA of which has been modified using genetic engineering techniques. More than 10% of the world's crop lands are planted with GM crops.
- In most cases, the aim is to introduce a new trait to the plant which does not occur naturally in the species like resistance to certain pests, diseases, environmental conditions, herbicides etc.
- Genetic Modification is also done to increase nutritional value, bioremediation and for other purposes like production of pharmaceutical agents, biofuels etc.

### Regulating Bodies concerned with GM Crops

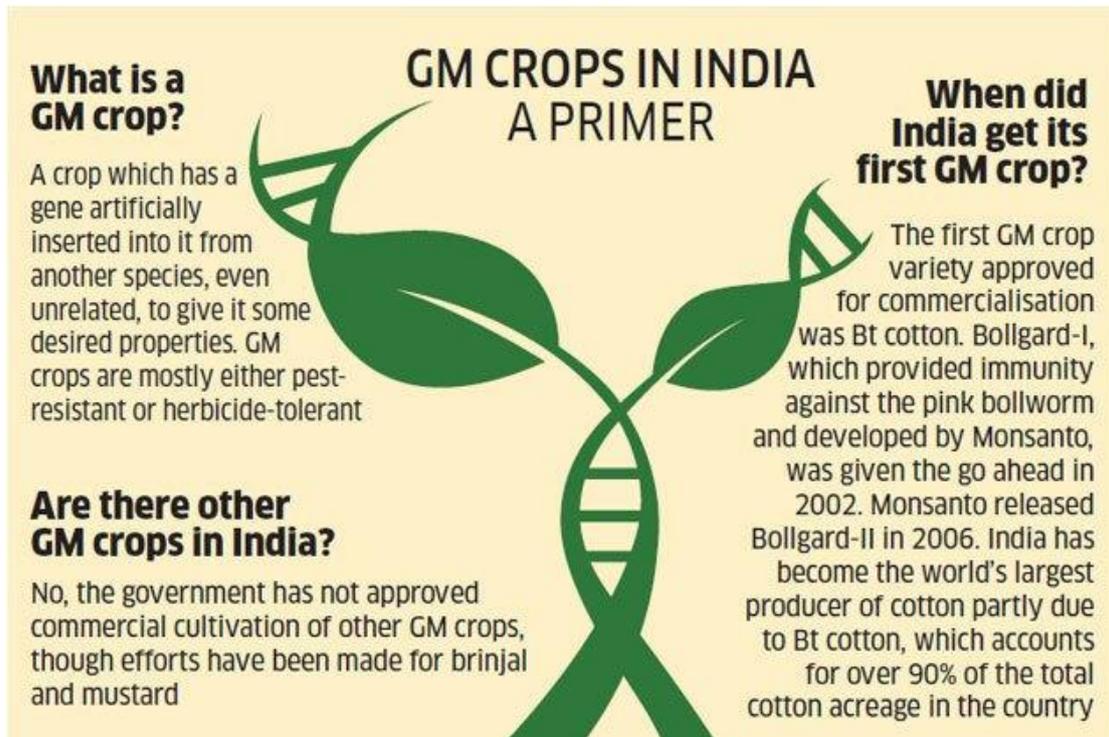
#### GEAC

- The top biotech regulator in India is Genetic Engineering Appraisal Committee (GEAC).
- The committee functions as a statutory body under the Environment Protection Act 1986 of the Ministry of Environment & Forests (MoEF).
- GEAC is responsible for granting permits to conduct experimental and large-scale open field trials and also grant approval for commercial release of biotech crops.
- The Rules of 1989 also define five competent authorities for handling of various aspects of the rules:
  - The Institutional Biosafety Committees (IBSC),
  - Review Committee of Genetic Manipulation (RCGM),
  - Genetic Engineering Approval Committee (GEAC),

- State Biotechnology Coordination Committee (SBCC) and
- District Level Committee (DLC)

### Cartagena Protocol

- The Cartagena Protocol on Biosafety to the Convention on Biological Diversity is an international agreement on biosafety as a supplement to the Convention on Biological Diversity effective since 2003.
- The Biosafety Protocol seeks to protect biological diversity from the potential risks posed by genetically modified organisms resulting from modern biotechnology.



**GM CROPS IN INDIA  
A PRIMER**

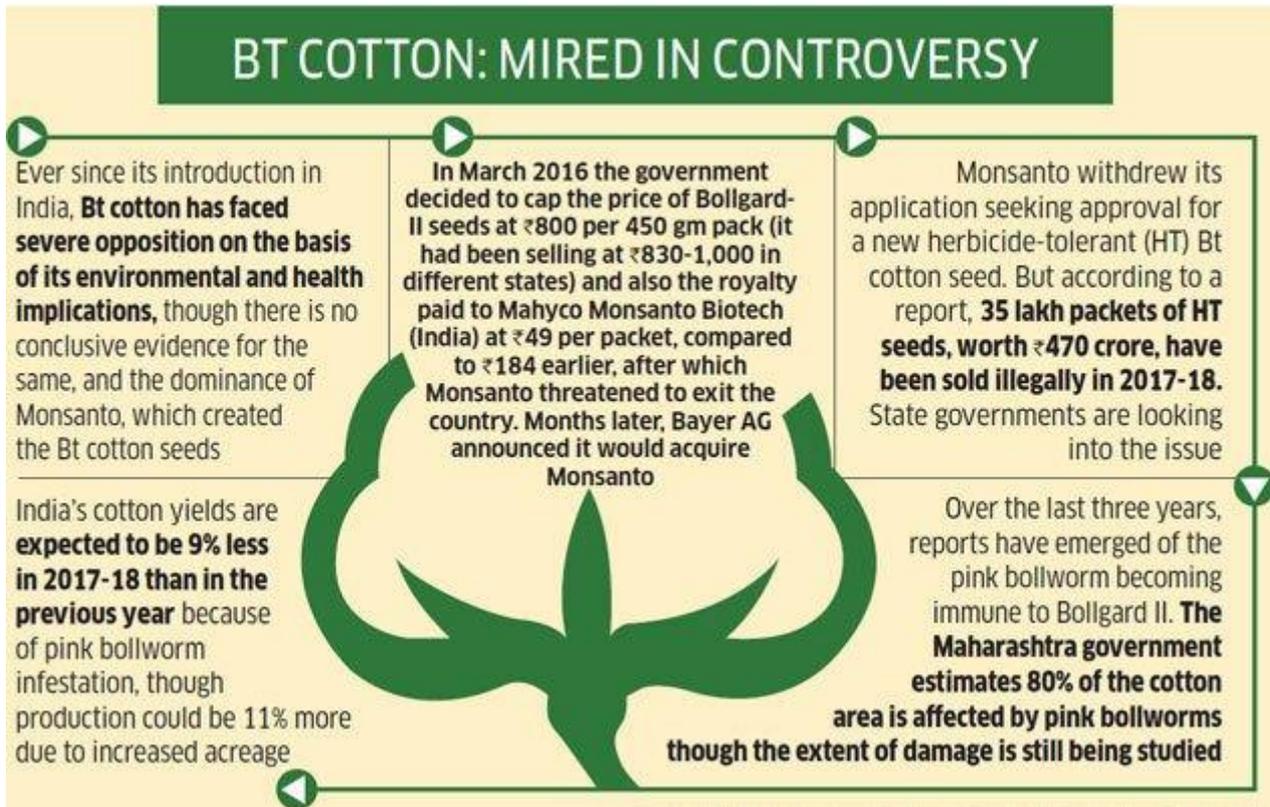
**What is a GM crop?**  
A crop which has a gene artificially inserted into it from another species, even unrelated, to give it some desired properties. GM crops are mostly either pest-resistant or herbicide-tolerant

**Are there other GM crops in India?**  
No, the government has not approved commercial cultivation of other GM crops, though efforts have been made for brinjal and mustard

**When did India get its first GM crop?**  
The first GM crop variety approved for commercialisation was Bt cotton. Bollgard-I, which provided immunity against the pink bollworm and developed by Monsanto, was given the go ahead in 2002. Monsanto released Bollgard-II in 2006. India has become the world's largest producer of cotton partly due to Bt cotton, which accounts for over 90% of the total cotton acreage in the country

### About Bt cotton

- Bt. cotton is the only GM crop approved by the Genetic Engineering Appraisal Committee (GEAC) which works under MOEF.
- Genetically modified (GM) cotton, the plant containing the pesticide gene from the bacteria *Bacillus thuringiensis* (Bt), has been grown in India for about twenty years.
- Strains of the bacterium *Bacillus thuringiensis* produce different Bt toxins, each harmful to different insects.
- Most notably, Bt toxins are insecticidal to the larvae of moths and butterflies, beetles, cotton bollworms and ghtu flies but are harmless to other forms of life.
- The gene coding for Bt toxin has been inserted into cotton as a transgene, causing it to produce this natural insecticide in its tissues.
- According to the Ministry of Agriculture, from 2005, adoption of Bt cotton rose to 81% in 2007, and up to 93% in 2011.



#### About HT Bt Cotton

- The third generation, i.e., herbicide tolerant Bt (HtBt) cotton variety saw the addition of 'Cp4-Epsps' gene from another soil bacterium, *Agrobacterium tumefaciens*, which produces a modified protein that allows the plant to withstand herbicide glyphosate.
- Farmers are not able to spray glyphosate on normal cotton because the chemical does not distinguish between the crop and weed, but the herbicide tolerant Bt (HtBt) cotton remains unaffected by glyphosate.
- Like the first two hybrids, Ht Bt has also been developed by the US giant Bayer Monsanto. The company had submitted a proposal to GEAC for approval in 2013. However, the proposal was later withdrawn by the company because of various regulatory issues with the government.

#### Raja Parba

(Source: [PIB](#) )

**Context:** PM greeted the people of Odisha on the occasion of Raja Parba.

#### What is Raja Parba?

- Raja Parba is a festival celebrated in Odisha.
- The second day signifies beginning of the solar month of "Mithuna" marking the beginning of rains.
- The festival falls in mid-June.
- The first day is called Pahili Raja, second day is called Mithuna Sankranti, and the third day is Bhu daaha or Basi Raja.
- It is believed that the mother Goddess Earth or the divine wife of Lord Vishnu undergoes menstruation during the first three days.

- The fourth and final day is called Vasumati snana (bathing of Mother Earth). Women worship a stone that symbolises the Mother Earth. They give her a bath with turmeric paste, offer her flowers and smear her with Sindoor.
- The term Raja has come from Rajaswala (meaning a menstruating woman) and during medieval period the festival became more popular as an agricultural holiday remarking the worship of Bhudevi, who is the wife of Lord Jagannath.
- During the first three days, women are given a break from household work and time to play indoor games. Girls adorn traditional saree and apply alatha on foot. All people abstain from walking barefoot on earth.
- During the Parba, Odia people do not undertake any construction works or tilling that requires the earth to be dug. And by not doing such activities, they pay ode to Mother Earth who needs a break from routine work.

### **Jivan Vayu**

(Source: [PIB](#) )

**Context:** *IIT Ropar developed nation's first power-free CPAP device 'Jivan Vayu'.*

#### **About 'Jivan Vayu':**

- Jivan Vayu can be used as a substitute for CPAP machines.
- This is India's first such device which functions even without electricity and is adapted to both kinds of oxygen generation units like O2 cylinders and oxygen pipelines in hospitals.
- These provisions are not available in otherwise existing CPAP machines.
- Fulfilling all the medically required parameters, this leak-proof, low-cost CPAP delivery system, "Jivan Vayu" is designed for a 22mm CPAP closed circuit tube.
- It can even be customized as per the size of the tube.
- Since it can run during power failures, this can be used to safely transport a patient.
- The device is ready for medical testing and mass manufacturing.

## INTERNATIONAL

### Space tourism

(Source: [The Hindu Businessline](#) )

**Context:** *Blue Origin, the aerospace company founded and owned by Jeff Bezos of Amazon.com, announced that it would launch its first passenger flight on July 20. Bezos will be one of the three passengers on board this first crewed flight. His brother and another person (identity unknown) who has bid \$28 million in an auction for a place in this historic flight will be his co-passengers.*

#### What is it?

- Space tourism is about humans travelling into space for recreational purposes.
- The first space tourist was US millionaire Dennis Tito, who in 2001 paid \$20 million to hitch a ride on a Russian Soyuz spacecraft to visit the international space station and spent eight days there.
- So, if this is not the first time, why is Blue Origin making the news? Well this is the first time that space tourism will be attempted by a private company.
- This apart, after Tito, there were only seven other private citizens who travelled to space until 2009 when the Russian space agency wound up the business of selling tickets to private citizens.
- Three private companies – Blue Origin, Virgin Galactic and Elon Musk’s SpaceX — are now spearheading the human endeavour to explore space. Their progress will decide whether space travel will one day become as accessible as air travel.

#### Why is it important?

- The upcoming flight on July 20 will be the first step in making space more accessible to humans. These are early stages for the space tourism industry offering only sub-orbital flights (flights cannot complete an orbit around earth) and will give an experience of only a few minutes in space.
- Eventually, the hope is that, anyone who can afford the trip can go to space with just a day’s training for a Blue Origin trip and three days of training for Virgin Galactic trip.
- Right now, only super rich may attempt it. The tickets are expected to be priced in the range of \$200,000-300,000 for space trips from Blue Origin and Virgin Galactic. But the demand far exceeds supply.
- A survey by research firm Cowen found that around 40 per cent of people with a net worth of more than \$5 million are interested in paying at least \$250,000 for a Virgin Galactic flight. It estimates a market of 2.4 million people for such flights.
- While Blue Origin is yet to open bookings, Virgin Galactic has already sold 600 tickets, which is multiple times its expected annual capacity in initial years of launch.
- At the end of last year analysts were expecting Virgin Galactic to carry 150 passengers into space 2021, which is now pushed into 2022 .

### The Affordable Care Act

(Source: [Indian Express](#) )

**Context:** *The US Supreme Court dismissed a challenge to the Obama-era Affordable Care Act (ACA) that was enacted in March 2010 and provides healthcare coverage to millions of Americans.*

### **What is the Affordable Care Act and why was it challenged?**

- ACA or the Patient Protection and Affordable Care Act was enacted in 2010 and required most Americans to get a minimum health insurance coverage.
- It imposed a penalty on those who failed to get the essential minimum health coverage. However, some changes were made to this act in 2017 that nullified this penalty to \$0.
- This change prompted Texas and some Republican-led states to file a suit against federal officials on the basis that without the penalty the minimum essential healthcare coverage would become unconstitutional rendering the act invalid.
- The three central goals of the act are to make health insurance affordable to more people, to expand the Medicaid program to cover all adults below 138 per cent of the federal poverty line and to support innovative medical care delivery methods that are designed to lower the cost of healthcare generally.

### **New Shephard rocket system**

(Source: [Indian Express](#) )

**Context:** Amazon founder and billionaire **Jeff Bezos's space company** called Blue Origin concluded the online auction for the first seat on New Shephard, a rocket system meant to take tourists to space. Over 7,600 people registered from 159 countries to bid for this seat, which ultimately went for a winning bid of \$28 million.

### **Background**

- New Shephard completed its seventh test launch successfully in October 2020 when it took off from Texas.
- In 2018, Blue Origin was one of the ten companies selected by NASA to conduct studies and advance technologies to collect, process and use space-based resources for missions to the Moon and Mars.
- In 2019, both signed an agreement that gives Blue Origin permission to use NASA's historic test stand, as a part of a growing number of partnerships between the space agency and the commercial space industry.

### **What is New Shephard?**

- New Shephard has been named after astronaut Alan Shephard – the first American to go to space – and offers flights to space over 100 km above the Earth and accommodation for payloads.
- Essentially, it is a rocket system that has been designed to take astronauts and research payloads past the Karman line – the internationally recognized boundary of space.
- The idea is to provide easier and more cost-effective access to space meant for purposes such as academic research, corporate technology development and entrepreneurial ventures among others.
- Apart from its academic and research-oriented goal, New Shephard will also allow space tourists to experience microgravity by taking them 100 km above the Earth.

### **Space tourism**

- Space tourism seeks to give laypeople the ability to go to space for recreational, leisure or business purposes. The idea is to make space more accessible to those individuals who are not astronauts and want to go to space for non-scientific purposes.
- A report published by the Congressional Research Service (CRS) notes that the concept of space tourism is “fairly new”. The report mentions that in 1997, the private company Space Adventures was founded to offer “bookable space-related adventures”.
- In fact, Space Adventures is the only private company to send paying customers to orbital space so far, the report says. In 2004, test pilot Mike Melville became the first private astronaut to fly beyond the Karman Line. which is recognised as the edge of space.



- In 2008, the billionaire video game developer, Richard Garriott became the sixth private citizen to fly to space. As per media reports, Garriott paid over \$30 million to spend about 12 days at the ISS, which he traveled aboard a Russian Soyuz spacecraft.
- Before Garriott, Space Adventures' customer Dennis Tito became the first space tourist in 2001. His flight to space was objected to by NASA citing lack of training.
- As per CRS, the company has sent seven paying customers to space between 2001 and 2009 and tourist visits to space came to halt in 2011, when NASA suspended its shuttle program, after which American astronauts were given seats on the Russian Soyuz spacecraft to get to the ISS.
- Apart from Blue Origin, Richard Branson's Virgin Galactic is also expected to begin space flights meant for space tourists this year. Elon Musk's SpaceX is also working on sending tourists to space.



# Mains

## GS II

### A balance between civil rights and the imperatives of anti-terror laws

(Source: [The Hindu](#) )

**Context:** *The judgment of the Delhi High Court granting bail to activists Devangana Kalita, Natasha Narwal, and Asif Iqbal Tanha — they have been in jail for over a year (without trial) for their alleged role in the 2020 Delhi riots — is significant for many reasons. Most importantly, it brings to a close many months of jail time for three people who are yet to be proven guilty of any crime, something that should be anathema to any civilised justice system. What is also significant, however, is that the judgment represents an important judicial pushback to the authoritarian legal regime under the Unlawful Activities (Prevention) Act (“UAPA”).*

#### The root of the issue

- Ostensibly designed to check and address terrorism, the UAPA is perhaps one of the most abused laws in India today.
- The root of the problem lies in Section 43(D)(5) of this Act, which prevents the release of any accused person on bail if, on a perusal of the case diary, or the report made under Section 173 of the Code Of Criminal Procedure, the court is of the opinion that “there are reasonable grounds for believing that the accusation against such person is prima facie true”.
- It is important to break this down. Broadly speaking, India follows the adversarial system of criminal justice, where two sides to a dispute attempt to persuade the court that their version of events is true. At the heart of the adversarial system of justice is the testing of evidence through cross-examination.
- Each side is afforded the opportunity to scrutinise, challenge, and question the evidence produced by its opponent; and the best way for a judge to unearth the truth — or the closest approximation of it — is to consider which side’s evidence is left standing, and appears more persuasive, after the rigours of cross-examination.
- Production of evidence, and cross-examination, involves witnesses, recoveries of incriminating objects, tests of handwriting or voice samples, and many other elements. It constitutes the bulk of a criminal trial.
- In India, with our overburdened courts and creaking justice system, criminal trials take years.
- In high-profile cases such as the Delhi riots case, where the record is bulky, and the witnesses number in their hundreds, trials can take many years — even a decade or more.

#### Importance of bail

- **For this reason, bail becomes of utmost importance. If an individual is not able to secure bail from the courts, they will languish as under-trials in prison, for the duration of the case, no matter how many years it takes (in recent memory, there are cases of people being found innocent in terrorism cases after 14 and even 23 years in prison). Bail, thus, becomes the only safeguard and guarantee of the constitutional right to liberty**
- In ordinary circumstances, when considering the question of bail, a court is meant to take into account a range of factors. These include whether the accused is a flight risk, whether he or she might tamper with the evidence or attempt to influence witnesses, and the gravity of the offence.
- But it is here that Section 43(D)(5) of the UAPA plays such a damaging role. As we have just seen, under the classical vision of criminal justice, truth — about innocence or guilt — can only be determined after the evidence of both the prosecution and the defence has been subjected to the rigours of cross-examination.



- However, as lawyers and scholars such as Abhinav Sekhri and Anjana Prakash have also pointed out, Section 43(D)(5) short-circuits that core assumption. For the grant of bail, it only looks at the plausibility of one side's evidence — that is, the Prosecution's.
- It binds the court to look at only the case diary or the police report, which has not been challenged by cross-examination, and requires that bail be denied as long as the unchallenged prosecution case appears to be prima facie true.

### **One-sided**

- The perversity of Section 43(D)(5), thus, is that it forces the court to make an effective determination of guilt or innocence based on one side's unchallenged story, and on that basis to deprive individuals of their freedom for years on end. In a democratic polity, which is committed to the rule of law, this is a deeply troubling state of affairs.
- The effect of Section 43(D)(5), as one can see, is that once the police elect to charge sheet an individual under the UAPA, it becomes extremely difficult for bail to be granted.
- Even outlandish or trumped-up cases can sound convincing until people have a chance to interrogate and challenge them.
- In short, unless the police prepare an extremely shoddy case — that is riddled with internal contradictions, for example — a case diary or a report will invariably make out a "prima facie" case against an individual.

### **Finer points of the judgment**

- It is here that the Delhi High Court's judgment becomes important. The Bench of Justices Siddharth Mridul and Anup Jairam Bhambani correctly note that even though Section 43(D)(5) departs from many basic principles of criminal justice, there are other fundamental principles that remain of cardinal significance.
- These include, for example, that the initial burden of demonstrating guilt must always lie upon the prosecution; and also, that criminal offences must be specific in their terms, and read narrowly, to avoid bringing the innocent within their net.
- On this basis, the court's judgment notes that as the UAPA is meant to deal with terrorist offences, its application must be limited to acts that can reasonably fall within a plausible understanding of "terrorism".
- "Terrorism" is a term of art, and not a word that can be thrown around loosely. Thus, to attract the provisions of the UAPA — the judgment holds — the charge sheet must reveal factual, individualised, and particular allegations linking the accused to a terrorist act.
- The judgment then finds that even if the police's claims are taken to be true, no such allegations exist. At the highest, the accusations against the activists involve calls for protests and chakka jams (road blockages).
- There is no act, overt or covert, attributed to the activists that could constitute a terrorist offence.
- And, importantly, inferences or hypotheticals drawn by the police do not count at the stage of granting bail. Coupled with the significance of the right to protest and to dissent under our constitutional scheme, the judgment therefore holds that even prima facie, a case under the UAPA has not been made out, and therefore, there is no question of the application of Section 43(D)(5).
- The Delhi High Court's judgment indicates a pathway forward in the quest for finding a balance between citizens' civil rights and the imperatives of anti-terrorism legislation such as the UAPA.
- A position under which citizens can be jailed for years on end just on the basis of police reports and case diaries, with courts precluded from granting them bail, is completely inconsistent with democracy, and redolent of authoritarian or tyrannical states.
- However, the court's analysis shows how even within — and consistent with — the terms of the UAPA, there is an important role for a conscientious judiciary to play. By scrutinising the police case on its own terms, and according a strict interpretation to draconian legislation such as the UAPA, courts can ensure that civil rights are not left entirely at the mercy of the state.



- At the time of writing, the High Court's judgment has been appealed by the Delhi Police to the Supreme Court of India. It now remains to be seen whether the highest court will also endorse this crucial ruling, which restates the responsibility of an independent judiciary in checking executive impunity.

## **Reviving the spirit of multilateralism**

(Source: [The Hindu](#) )

**Context:** *Germany, the U.K., France, Canada, Japan and Italy — meet in Cornwall in south-west England, they would be marking the 47th edition of the “Group of seven” summit. Besides the international milieu in which this summit is being conducted — the ongoing COVID-19 pandemic — its significance lies also in who is not attending the summit: former U.S. President Donald Trump.*

### **Background**

- Formed in 1975 in the aftermath of the 1973 Oil Crisis, the G7 then collectively produced 70% of the world's GDP, a number that has dropped to 40% now
- The G7 became the G8 with Russia's admission into the group in 1998. But it reverted to the G7 in 2014, following Russia's annexation of Crimea
- Over the years, the group has taken up a host of issues ranging from economic growth to environmental issues and terrorism. The latest summit seeks to address global health challenges
- The G7 prides itself as a group of nations that steadfastly promote liberal democracy and enjoy economic prosperity, which they seek to institutionalise through multilateral cooperation.
- When Mr. Trump was at the helm in the U.S., his transactional approach to international relations showed disdain for multilateralism, evidenced in particular in the way he pulled the U.S out of the Paris Accord, and openly complained about the summit itself being “outdated”.
- The current President of the U.S., Joe Biden has sought to reorient his country's policy towards multilateralism, which includes closer coordination with traditional allies in the Global North and this sets the stage for a renewed emphasis of purpose for the G7 as they meet in Cornwall.
- Already, the Finance Ministers of the G7, who had met on June 4-5 in the run-up to the summit, had agreed to backing a minimum global tax rate of 15% for multinational corporations, thereby setting the stage for MNCs to pay a fairer share of taxes in jurisdictions where they make money and profits, rather than playing governments in a race where they will compete on who will tax them the least and allowing MNCs to take advantage of “tax havens”.
- Even considering the fact that the tax rate of 15% is low according to some critics (Mr. Biden had himself proposed 21%), this move will herald corrective steps that could benefit both large and medium economies.
- The U.S. in particular is desperate to shore up its revenues as its government announced big spending plans to tide over the economic crisis wrought by the pandemic. The Biden administration has hinted that it could gain nearly \$500 billion in tax revenue over a decade if the global minimum tax idea comes to pass.
- More steps remain for this to become reality — the G7 countries would have to convince other nations in the broader G20, which includes China, India, Russia and South Africa.
- According to the U.K.-based Tax Justice Network, India suffers an annual loss of \$10 billion due to lax tax laws on MNCs globally and countries such as India should also agree to this deal, but getting a sign-in from others such as Ireland, which benefits from lower taxes on MNCs, will not be easy.
- Even within the U.S., where President Biden's power to get legislation passed rests on a razor-thin majority at the Senate and House of Representatives of Congress, the going would not be easy as the Republican Party is loath to taxing corporations.



- Yet, for the G7 to have made a global minimum tax a possibility was a “multilateral” breakthrough of sorts for cooperation among these nations.
- Despite its collectively large economies and a commitment to liberal democratic values, the G7 is no longer the behemoth that it was. Formed in 1975 in the aftermath of the 1973 Oil Crisis, the G7 then collectively produced 70% of the world’s GDP, a number that has dropped to 40%, as the Economist points out.
- The larger G20 has become a more relevant multilateral body due to the inclusion of economies such as Brazil, China, India and South Africa but the ability of the G7 summit to set the tone for cooperation on global issues has not diminished.

### **Economic differences**

- When the G7 summits began in the mid-1970s, the heads of states sought to resolve economic differences related to exchange rate policy, growth, inflation, energy policy among others and this set the stage for multilateral trade arrangements and negotiations with the European Union and Japan assuming greater responsibilities on multilateral issues along with the U.S.
- Interestingly, the consensus among these nations, especially in the 1990s, to promote policies for the ease of flow of multinational capital and a concomitant reduction in expansive welfarism by the states, set the tone for the “tax competition” among states which went on to benefit MNCs.
- As the summits progressed, the emphasis on economic issues remained salient and endured, but the heads of States began to prioritise other matters as well, especially after the end of the Cold War — the environment, debt relief for developing countries, and the strains on globalisation.
- Terrorism also became a key agenda for discussion and action. The G7 also became the G8 with Russia’s admission into the group in 1998, despite its limited national wealth compared to the other countries. The G8 reverted to the G7 again in 2014, following Russia’s expulsion after its annexation of Crimea.
- The Cornwall summit includes invitees in heads of state from outside the G7 as well — Australia, South Korea and India with Prime Minister Narendra Modi set to attend it remotely.
- The presence of these three countries is seen as a nod to the recognition of their discontent with the influence of China, which persists with what the West believes is an anachronistic single party regime but is also an economic superpower.
- In the summit, G7 leaders unveiled the Build Back Better World project, which pledges hundreds of billions of infrastructure investment in low- and middle-income countries based on "values-driven, high-standard and transparent" partnerships. It is seen as a counterweight against China's multi-billion-dollar Belt and Road Initiative.
- While U.K. Prime Minister Boris Johnson has sought to hail the traditional trans-Atlantic ties with the U.S. and a revival of their mutual role in setting the multilateral tone for G7 and beyond, the Brexit issue has cast a shadow over their ties.
- Mr. Biden, unlike Mr. Trump, had steadfastly opposed Brexit and his advisers have raised concerns over the Britain’s dispute with the EU over Northern Ireland Mr. Johnson might be pressed to make concessions to address such concerns.

### **Global health**

- More significantly though, the G7’s declaration on global health in which they commit to resources to quickly develop and license vaccines, medicines and diagnostics for future diseases is an important step that recognises the havoc that COVID-19 has wrought across the world and the need to prepare for future epidemics.
- Mr. Johnson has said he wishes for the entire world to be vaccinated by 2022, but has not specified details as to how this can be achieved. If the summit manages to agree to substantially extend vaccine availability for low-income countries, that would be a great achievement.
- After all, the disparity in vaccine availability with the U.S. and EU cornering vaccines far more than what their populations need while other countries, India and those in Africa, are hampered by shortages, is a consequence of the autarkic turn during the Trump period.

- If the G7 seeks to revive its multilateral emphasis in the spirit of globalisation, addressing the vaccine disparity will truly take it forward from the dregs of Trumpism.

### **Biden's Manichean vision**

(Source: [The Hindu](#) )

**Context:** *In Mr. Biden's Manichean vision, the world is at an "inflection point between those who argue that autocracy is the best way forward and those who understand that democracy is essential". Disproving the "false narrative" that dictatorships are faster and more efficient, and refuting autocrats who claim that the age of democracy is over, are the driving forces of Mr. Biden's foreign policy. At the Cornwall summit, his non-confrontational approach to his G7 counterparts signaled democracies can manage their differences, team up multilaterally and push back the influence and muscle-flexing of China and Russia.*

#### **An expanded coalition**

- To make sure that the messaging about team-building by democracies went across, the host of the Cornwall summit, British Prime Minister Boris Johnson, invited four other democracies as guest participants – Australia, India, South Korea and South Africa.
- The combination of the G7 and the first three of these invitees has drawn attention to an expanded 'D10' coalition of democracies. Mr. Biden's Coordinator for the Indo-Pacific, Kurt Campbell, promotes D10 as a necessary instrument to "bridge European and regional (Asian) approaches to Chinese challenges."
- Since Japan is the only democracy from Asia within the G7, forging a D10 with Australia, India and South Korea could corral the U.S.'s European and Indo-Pacific allies to present a transcontinental counterweight to China.
- A 78-year-old who built his career in American politics during the Cold War, Mr. Biden carries the liberal memories of that period when the U.S. mobilised allies across continents to beat back the Soviet Union.

#### **Interdependent links**

- But what is different with today's 'new Cold War' is that power is more diffused around the world and economic interdependence transcends a neat division of the world into black (dictatorships) and white (democracies).
- For example, despite being a U.S. ally and a democracy, South Korea is wary of joining a formal D10 or Quad-plus alliance because its economy is interwoven with that of China.
- India, which has been wooing the Europeans to bring their economic and military heft to the Indo-Pacific, would be happy to see a combined trans-Atlantic and Indo-Pacific formation like D10 that could counterbalance Chinese hegemony.
- But it cannot afford to alienate friendly undemocratic powers like Vietnam, Iran or Russia, all of which are vectors for India's ambitions of becoming a 'leading power' in the world.
- And for that matter, the Americans and Europeans are themselves not undiluted upholders of democracy. The U.S.'s allies in West Asia remain notoriously authoritarian, and European countries still cultivate client dictatorships in Africa.
- As every democratic power has some authoritarian partners, should the Biden-led pitch for a "summit of democracies" and "contest with autocracies worldwide" be treated as hypocritical rhetoric? Politics is the art of the possible and so is geopolitics.
- The G7 and D10 are not idealistic alliances to spread democracy everywhere. They have to be selective in targeting adversaries and strike a balance among moral values, geo-strategic needs, and the complexities of the present multipolar world order.



- To the extent that cementing relationships with the principle of democracy helps corner specific undemocratic foes, there is a practical utility to D10. But these concepts cannot metastasise into rigid structures waging holy war between good and evil. Navigating ambiguities with nuanced policies is the key.

### America's mistakes in the 'forever war'

(Source: [The Hindu](#) )

**Context:** *President Joe Biden has set the September 11 deadline for all American troops to leave Afghanistan, winding up 20 years of the invasion by the United States.*

#### **Details:**

- Military officials say the withdrawal would be complete about two months ahead of the schedule.
- The peace talks between the Afghan government and the Taliban that started in Doha last year have been frozen for months.
- The bid by the U.S. to hold a summit in Istanbul between the warring parties has been a non-starter. On the ground, the Taliban are making steady advances.
- Since May 1, the Taliban have seized eight districts in four different regions.
- At least six provisional capitals, including Kabul, Lashkar Gah (Helmand) and Kandahar, have the insurgents at their gates.
- As of now, about 22% of Afghanistan's 398 districts are in the Taliban's control and 24% with the government, while more than half of the country's territories are contested.

#### **A neocon war**

- The longest war in America's history is also turning out to be one of its most disastrous. After 20 years of war, when the world's mightiest military is exiting Afghanistan, the Taliban, which it sought to perish, are at the height of their influence since they were driven out of power.
- Terrorist networks, which the U.S. vowed to destroy when it launched its global war on terror in Afghanistan, are now scattered across Asia and Africa, from eastern Afghanistan to the Sahel region. What went wrong for the U.S.?
- The U.S. made three fundamental mistakes, which led to the superpower's humiliating exit from this clichéd 'graveyard of empires'.
- First, the U.S. went into Afghanistan without learning anything from the country's history, or was blindsided by the unipolar hubris.
- Afghanistan was invaded by great powers in the 19th and 20th centuries as well. The British empire, which feared a Russian invasion to India via Afghanistan, sent troops to the country in 1839, ousted its ruler Dost Muhammad and established a client regime of its ally, Shah Shujah.
- But the British had to withdraw in the face of Afghan resistance, mostly by Pashtun warriors; while retreating in 1842, all of the British and Indian troops, except one doctor, were massacred by Afghans.
- In 1979, the Soviet Union sent troops to Afghanistan to salvage the country's nascent communist regime, orchestrated a coup and established a friendly regime.
- The Soviets, faced with a bloody Mujahideen resistance (which was bankrolled and trained by the U.S., Saudi Arabia and Pakistan), had to pull back in 1989 in ignominy. The U.S. might have thought that history would have been kinder to them when they launched the Afghan invasion in October 2001. It wasn't.
- Once they invaded Afghanistan, the U.S., given the mistakes the British and the Soviets committed, could have had a strategically focused campaign, targeting its enemy, al-Qaeda, which was behind the September 11 attacks.



- It should have gone after the terrorists, destroyed their networks and then withdrawn. That is what a realist power would do. But the U.S., driven by the neoconservative globalism of the Bush administration, had set more ambitious goals for itself.
- It wanted to topple the Taliban and rebuild a centralised “democratic” state in Afghanistan. How did building democratic institutions in Afghanistan from top-down serve America’s foreign policy interests?
- The neoconservatives in Washington might have found it fascinating, but the move made little strategic sense.
- And now, the U.S. is retreating, practically leaving Afghanistan to the mercy of the Taliban, in return for assurances from them that they would not assist the terrorists such as al-Qaeda and the Islamic State.

### **Strategic failure**

- After the Taliban regime was toppled and al-Qaeda driven back into the caves and mountains, the U.S. still had a chance to stabilise the country with help from its different factions and leave. In December 2001, Taliban spokesperson Mullah Abdul Salam Zaeef had offered to surrender.
- The Taliban sought modest terms — Mullah Omar, their leader, should be allowed to return home. But the Americans rejected the offer and promised to destroy the Taliban in every corner of the country. The Taliban are an indigenous militancy with deep roots in Afghanistan’s Pashtun majority.
- Toppling them from power was easy, but defeating them in their country was not. And after vowing to defeat them, the U.S. launched the Iraq invasion to topple Saddam Hussein and export democracy there. This was the second mistake.
- The U.S. took Pakistan’s tactical support for its war on terror for granted, overlooking the fact that Pakistan had deep strategic ties with the Taliban. Pakistan played a double game by supporting the U.S. campaign in Afghanistan while at the same time offering refuge and support to the Taliban.
- For Pakistan, the Taliban have been their wild card to check India’s influence in Afghanistan. When the U.S. declared victory in Afghanistan prematurely and went on to invade Iraq in 2003, it became easier for Pakistan to assist the Taliban’s regrouping, at a time when the Afghan government was grappling with corruption and infighting on ethnic lines.
- For the ordinary Afghans living outside the provincial capitals, life did not change much under the new government. When the U.S. got stuck in the morass of the Iraq war, the Taliban were steadily making a comeback in Afghanistan’s hinterlands.
- By the time the U.S. shifted its focus back to Afghanistan, after defeating the Islamic State in Iraq and Syria and amid growing calls at home to end the “endless wars”, the Afghan war had already been lost.

### **Surrender to the Taliban**

- Granted, there is a realist case for the U.S. to leave Afghanistan. It seems to have reached the conclusion long ago that the war was one that could not be turned around.
- The war was also becoming increasingly unpopular at home, prompting Presidents, from Barack Obama to Donald Trump and Joe Biden, to promise to wind it up. The U.S. has also been shifting its focus to East Asia where China is rising. And given the foreign policy challenges the U.S. is facing now elsewhere, continuing troops and commitments in Afghanistan makes little sense.
- But the U.S. could have opted for a more orderly withdrawal. Instead, it surrendered to the Taliban’s terms to pull back its troops. This was the third mistake.
- The Taliban have not defeated the Afghan troops yet. The Afghan government has about 200,000 battle-hardened soldiers, including the U.S.-trained elite special forces. The government still controls most of the country’s population centres.
- The Taliban’s efforts to take over provincial capitals were successfully thwarted in the recent past, with air power help from the U.S. With the U.S. being present in Afghanistan, the conflict has been in a stalemate — the government not being able to defeat the insurgents and the Taliban unable to overrun the cities.
- The U.S. should have used this stalemate, coupled with mounting pressure on Pakistan, to extract concessions from the Taliban. Instead, the Trump administration went for talks with the Taliban on their terms.



- The Afghan government was kept out of the whole process because the Taliban do not recognise them as being legitimate. And the U.S. struck a direct deal with the Taliban, without addressing any of the Afghan concerns.
- The American exit would now decisively shift the balance of power in favour of the Taliban. The insurgents have always known this. They have stepped up attacks and carried out targeted killings aimed at weakening the Afghan government and terrorising society immediately after signing the agreement with the U.S. in February 2020.
- And ever since the remaining U.S. troops started pulling back from Afghanistan on May 1, the Taliban have started capturing more territories. The war may be winding down for the Americans. But for Afghans, it will continue in one form or another.

### **Needed: full disclosure on electoral bonds**

(Source: [The Hindu](#) )

**Context:** *In 2014, the Delhi High Court held that both the Congress and the Bharatiya Janata Party (BJP) were guilty of illegally accepting donations from two companies registered in India but whose controlling shareholder was Vedanta, a foreign company. The court held that this was in contravention of the Foreign Contribution (Regulation) Act (FCRA), 1976, as the donations accrued from “foreign sources” within the meaning of law. Following this indictment, the two parties came together in the last memorable bipartisan move. In 2016 and 2018, the government amended the FCRA through the annual Finance Bills, to retrospectively legalise the violations. The amendments and subsequent changes brought in by the current government enabled new and regressive pathways that afford full anonymity to corporate and foreign political donors.*

#### **A new form of anonymity**

- While recently hearing a Public Interest Litigation (PIL) by the Association of Democratic Reforms (ADR), the Supreme Court downplayed the concerns of the corrupting influence of anonymous corporate and foreign money. It offered us voters the suggestion of “match the following”.
- Earlier, only profit-making domestic companies could contribute to political parties; now loss-making companies can too.
- Earlier, foreign companies or companies where the controlling stake was held by a foreign company couldn't contribute; now they can. India's political parties could theoretically be fully funded by a foreign company operating in India or by a foreign entity through a shell company.
- In 2017, the then Finance Minister said anonymous cash donations to political parties would be reduced from ₹20,000 to ₹2,000 to ensure greater transparency in political funding. However, the concurrent introduction of electoral bonds brought a new form of anonymity to thousands of crores of donations.
- It drastically reduced public and legislative oversight. Only the ruling party via the State Bank of India (SBI) has a full account of all donations being made via electoral bonds, to itself and to Opposition parties.
- Parliament, the Election Commission and the Opposition parties do not have this information, nor do the public.
- The ADR PIL challenges electoral bonds as unconstitutional. In March 2021, the Supreme Court refused to stay the sale of electoral bonds before the West Bengal elections. Instead, the judgment listed several documents which supposedly establish a paper trail on donations — “all that is required is a little more effort to cull out such information from both sides (purchaser of bond and political party) and do some ‘match the following’.”



- This is impractical and plainly incorrect. The Right to Information (RTI) Act of 2005 enables easier access to information held by public authorities. No ordinary person has the resources to navigate documents on obfuscating government websites or pore over income tax returns.
- The few civic and non-profit organisations that attempt to simplify information to enable accountability have been systematically delegitimised.
- Suggesting a “match the following” is incorrect for three reasons. If we set aside individual donors and focus just on registered entities, we will find that the full scale of registered entities is unknown. Even if registered companies filed annual financial statements, many do not disclose political donations. Crucially, political parties do not need to disclose their electoral bond donors either.
- According to back-of-the-envelope calculations, there are close to 25 lakh potential donors comprising just companies and firms. This includes about 12.6 lakh active private limited companies as of January 31, 2021.
- Unlike what is stated in the judgment, the annual reports of all these companies are not readily accessible on the website of the Ministry of Corporate Affairs. More than 12 lakh firms filed income tax returns for the assessment year 2018-19. Firms, unlike companies, have no regulatory mandate to submit their annual reports except for filing their annual tax returns, since their functioning is regulated by Acts other than the Companies Act of 2013.
- Even if these documents are indeed filed and available in the public domain, they will not specify donations to parties. Conveniently, the Finance Bill of 2017 amended Section 182 of the Companies Act of 2013 to remove the requirement for declaring disaggregated donations to political parties.
- At best, company statements might have a total aggregate amount of all donations, including philanthropic ones. If we are lucky, these might be sub-categorised as “political contributions through electoral bonds.” Nowhere are donations to specific political parties required to be mentioned.
- Even if one combs through these documents to find an actual political donation, there is nothing to match it with. Political parties do not need to disclose their electoral bond donors. Strictly speaking, political parties are not even supposed to know their electoral bond donors.
- The only requirement is the annual audit reports with a total of all donations received via electoral bonds. These reports are submitted with great delays. For instance, the audit reports for 2019-20 of major national parties were made available on the Election Commission’s website only a few days ago.
- The BJP’s report is not yet available as the Election Commission extended the deadline for the submission of Annual Audit Reports for 2019-20 to June 30, 2021. Even if these reports are submitted on time, there is no way to match a donation of a company to that received by a political party as only aggregate amounts are available.
- Hence, the “match the following” suggestion of the Supreme Court falls flat on its face. It is impossible for an average voter to pore over documents of lakhs of entities and track potential company and firm donors.
- Further, recipient-wise information is unavailable. Unlike the tall claims of electoral bonds enabling transparency, it is only RTI applications with the SBI that offer a glimpse into the crores of money funding political parties, and therefore influencing public policies.
- If they chose to, the Supreme Court or the legislature could order full and real-time disclosure, to the actual benefit of transparency and accountability. Instead, meagre civil society resources are expended in filing PILs and RTI applications, at significant personal risk.

### Winners and losers

- In effect, electoral bonds give political power to companies, wealthy individual donors, and foreign entities, thus diluting the universal franchise of one voter-one vote. Every vote is not equally valuable if companies can influence policies through hidden donations.
- The winner of this arrangement is the ruling party, whether at the Centre or in a State, and the loser is the average voter. Companies and political parties could exercise moral leadership and voluntarily disclose the identity of recipients and donors, as the Jharkhand Mukti Morcha recently did.
- Till then, voters are stuck with a ruling party with war chests of resources, being subject to relentless election campaigns, while donors surreptitiously and directly influence policy.

## GS III

### A place for disruptive technology in India's health sector

(Source: [The Hindu](#) )

**Context:** *As frontline warriors fighting COVID-19, the medical community has been selfless, but also losing a number of staff in the process. Nurses and attendants, on full-time duty, donning mainly masks and gloves as the only protective gear have been exposed to great risk. It is in such a situation that the relevance of disruptive technology and its applications comes into focus, potentially helping to reduce the chances of hospital staff contracting the infection.*

#### Details:

- There are reports in the global media of established innovative field hospitals using robots to care for COVID-19 affected patients. There are hospitals, in China, that use 5G-powered temperature measurement devices at the entrance to flag patients who have fever/fever-like symptoms.
- Other robots measure heart rates and blood oxygen levels through smart bracelets and rings that patients wear; they even sanitise wards.
- Last year, in India, the Sawai Man Singh government hospital in Jaipur held trials with a humanoid robot to deliver medicines and food to COVID-19 patients admitted there.
- The critical aspect is how new technologies can improve the welfare of societies and reduce the impact of communicable diseases, spotlighting the importance of technologies such as artificial intelligence (AI), autonomous systems, blockchain, cloud and quantum computing, data analytics, 5G.
- Blockchain technology can help in addressing the interoperability challenges that health information and technology systems face.
- The health blockchain would contain a complete indexed history of all medical data, including formal medical records and health data from mobile applications and wearable sensors. This can also be stored in a secure network and authenticated, besides helping in seamless medical attention.
- Big data analytics can help improve patient-based services tremendously such as early disease detection. Even hospital health-care facilities can be improved to a great extent. AI and the Internet of Medical Things, or IoMT (which is defined as a connected infrastructure of medical devices, software applications, and health systems and services) are shaping health-care applications.
- Medical autonomous systems can also improve health delivery to a great extent and their applications are focused on supporting medical care delivery in dispersed and complex environments with the help of futuristic technologies. This system may also include autonomous critical care system, autonomous intubation, autonomous cricothyrotomy and other autonomous interventional procedures.
- Cloud computing is another application facilitating collaboration and data exchanges between doctors, departments, and even institutions and medical providers to enable best treatment.

#### Furthering UHC

- According to the World Health Organization, “Universal health coverage (UHC) is the single most powerful concept that public health has to offer. It is a powerful social equalizer and the ultimate expression of fairness.”
- The question is about how UHC can be achieved through the application of digital technologies, led by a robust strategy integrating human, financial, organisational and technological resources.

- Studies by WHO show that weakly-coordinated steps may lead to stand-alone information and communication technology solutions, leading to a fragmentation of information and resulting in poor delivery of care.
- India needs to own its digital health strategy that works and leads towards universal health coverage and person-centred care.
- Such a strategy should emphasise the ethical appropriateness of digital technologies, cross the digital divide, and ensure inclusion across the economy. ‘Ayushman Bharat’ and tools such as Information and Communication Technology could be fine-tuned with this strategy to promote ways to protect populations.
- Online consultation through video conferencing should be a key part of such a strategy, especially in times when there is transmission of communicable diseases.

### Using local knowledge

- In addition to effective national policies and robust health systems, an effective national response must also draw upon local knowledge. Community nurses, doctors, and health workers in developing countries do act as frontline sentinels.
- An example is the Ebola virus outbreak in Africa, where communities proactively helped curtail the spread much before government health teams arrived.
- Another example is from Indonesia, where the experience of backyard poultry farmers was used to tackle bird flu.
- Primary health centres in India could examine local/traditional knowledge and experience and then use it along with modern technology.

### Possible challenges

- In the developing world, and this includes India, initial efforts in this direction should involve synchronisation and integration, developing a template for sharing data, and reengineering many of the institutional and structural arrangements in the medical sector.
- Big data applications in the health sector should help hospitals provide the best facilities and at less cost, provide a level playing field for all sectors, and foster competition.
- The possible constraints in this effort are a standardisation of health data, organisational silos, data security and data privacy, and also high investments.
- However, there is no doubt that disruptive technology can play an important role in improving the health sector in general.

## **Embracing cryptocurrency**

(Source: [The Hindu](#) )

**Context:** *On June 9, El Salvador became the first country in the world to adopt bitcoin as legal tender. This is illustrative of the rising global trend of embracing cryptocurrencies with all its attendant risks. While not every country’s approach has been as open as El Salvador’s, the dominant theme has been to permit the growth of the cryptocurrency market subject to certain safeguards. As India finds itself at a crossroads of prohibition and regulation in its tryst with cryptocurrencies, globally, the inclination towards permissive regulation recognises the freedom of choice given to people for using a medium of exchange other than a central bank-backed fiat currency.*

### Swinging between extremes



- The cryptocurrency market in India has developed in a largely laissez-faire regulatory space since the first recorded cryptocurrency transaction in 2010.
- Between 2013 and 2018, the government's response to the rise of virtual currencies was cautionary, alerting users to the potential risks posed by cryptocurrency transactions. These fears were legitimate and stemmed from cryptocurrencies' volatility, their susceptibility to hacking, and the fact that they could potentially facilitate criminal activities such as money laundering, terrorist financing and tax evasion.
- Instead of developing a regulatory framework to address these issues, the Reserve Bank of India (RBI), in April 2018, effectively imposed a ban on cryptocurrency trading. This ban was overturned by the Supreme Court in 2020.
- The court reasoned that there were alternative regulatory measures short of an outright ban through which the RBI could have achieved its objective of curbing the risks associated with cryptocurrency trading. While the court had an opportunity to put a label on the legal nature of cryptocurrencies, it stopped short of doing so.
- After swinging between the extremes of non-interference and prohibition, a clue as to India's next move lies in the draft Cryptocurrency and Regulation of Official Digital Currency Bill, 2021.
- The draft Bill proposes to criminalise all private cryptocurrencies while also laying down the regulatory framework for an RBI-backed digital currency.
- The Minister of State for Finance, in response to a question in Parliament, stated that regulatory bodies do not have a legal framework to directly regulate private cryptocurrencies owing to their imprecise legal nature in India.
- As the draft Bill is yet to be tabled in Parliament, there is some hope that his concerns will be addressed in the form of a tailored regulatory approach rather than another ban.

#### **Lessons from other countries**

- There are lessons in this regard from the U.K., Singapore and the U.S. The U.K. has classified cryptocurrency as property and this has paved the way for cryptocurrencies to be encompassed within a regulated legal framework in the country's economy.
- The U.K. has sought to regulate the functioning of crypto-businesses while still imposing some restrictions to protect the interests of investors. On the other hand, while there is no exact legal classification of cryptocurrency in Singapore, the amenability of cryptocurrency transactions to the contract law framework of the country has been firmly established and there is now a legal framework for cryptocurrency trading.
- In the U.S., the open approach taken by the authorities has resulted in the trade in cryptocurrency being both taxed and appropriately regulated.
- While the approaches are specific to the countries' economic realities and cannot be blindly implemented in India, the global regulatory attitude towards cryptocurrencies offers valuable insights into the alternative ways to achieve balanced regulation.
- In India, the absence of an existing legal classification of cryptocurrency should not be the impetus to prohibit its use.
- The government should use this as an opportunity to allow private individuals the freedom to harness a powerful new technology with appropriate regulatory standards.

### **Planning for a biosecure future**

(Source: [The Hindu](#) )

**Context:** *Among the exponential technologies shaping the world today, the biological revolution is of exceptional importance. The rapid rise of synthetic biology in the last two decades and its still-to-be-*



*understood implications haven't received sufficient attention from the security studies or policy communities. COVID-19 has further highlighted the biosecurity concerns of synthetic biology. The argument is not that COVID-19 originated in a lab, but that dangerous bio-weapons can come from labs.*

### **Synthetic biology**

- That new organisms, biological parts and devices can be created or that existing natural life forms can be redesigned should ideally be the subject matter for scientists to concern themselves with or for ethicists to debate.
- But today, there is a growing realisation that exponential technologies have hitherto unforeseen national and global security implications.
- In 2014, for instance, the U.S. Department of Defense categorised synthetic biology as one of the six 'disruptive basic research areas' even though linkage between national security and synthetic biology is yet to become an agenda item in mainstream national security debates.
- Synthetic biology is a revolutionary technology which can help us manipulate biological organisms and processes for human betterment, especially in treating diseases, by re-engineering cells. But it is a double-edged sword.
- There are many risks associated with the technology which must be addressed before it becomes widely accessible. For one, there is the possibility of deliberate misuse. While the technology is still not easily accessible, the day is not far off when such technologies won't be difficult to access.
- There is a need to carefully review, especially in the wake of the pandemic, the biosecurity systems in place where such technologies are in use. Accidental leaks of experimental pathogens are another concern.
- Insufficiently trained staff, inadequately safeguarded facilities, and lack of proper protocols could all be behind such leaks. The reality is that there has been very little focus on threats emanating from biological sources.
- Contrast this with the focus on nuclear weapons, facilities and material. Not only are they tightly controlled but are also the subject of strong global regimes. This is despite the fact that a well-orchestrated biological attack could have serious implications even though it would be less 'spectacular' since its effects are less immediate.
- This was before synthetic biology came into play. A well-planned attack using highly infectious pathogens synthetically engineered in a lab could be disastrous.
- What if such attacks are contemplated and carried out by state actors against adversaries? How easy would it be to pin responsibility on a specific actor if the incubation period is high and the pathogen can be modified to hide its origin?
- Unlike the nuclear domain, the fields of biology or synthetic biology are not regulated internationally despite growing military interest in synthetic biology applications and their potential misuse.
- The 'weapon of mass destruction' (WMD) capability of bio-weapons has been long recognised but very little has been done by the international community about it.
- Of the three types of WMD, nuclear weapons have received the maximum safety and security attention given the treaty and institutional arrangements associated with it. Chemical weapons come next. There is an international convention and an implementing body. However, when it comes to bio-weapons, all we have is the Biological and Toxin Weapons Convention (BTWC) of 1972 with no implementing body.
- The BTWC does not have a verification clause, nor does it have clearly laid down rules and procedures to guide research in this field.
- The dilemma is evident in Article 1 of the BTWC itself which bans "microbial or other biological agents, or toxins, whatever their origin or method of production" that "have no justification for prophylactic, protective or other peaceful purposes".
- In other words, while bio-weapons are banned, research for medical and bio-defence purposes are allowed. While this is understandable, the problem is that there is a thin line between bio-defence research and bio-weapons research.



- Since bio-defence research routinely uses pathogens and toxins for experimental purposes, processes, know-how and outcomes of bio-defence research could potentially be used to create bio-weapons, especially with the new advancements in synthetic biology. More so as the pharmaceutical industry has vehemently opposed any intrusive inspection regime.
- An Ad Hoc Group set up in 1994 to negotiate a Protocol to enhance the transparency of treaty-relevant biological facilities and activities to help deter violations of the BTWC submitted a report at the Fifth BTWC Review Conference in 2001 but was not accepted by the member states. The initiative has since been shelved.
- Pandemics have also highlighted that the traditional distinction at the international institutional level between biological weapons (a field governed by the BTWC) and diseases (a domain under the World Health Organization) may not be useful anymore. There needs to be more conversation between health specialists and bio-weapons/defence specialists.
- The November 2021 BTWC review conference must take stock of the advances in the field, address the thinning line between biotechnology research and bio-weapons research, and consider international measures for monitoring and verification.

### **India uniquely unprepared**

- India is at a uniquely disadvantaged position compared to the more developed countries in this area given poor disease surveillance, insufficient coordination among various government departments dealing with biosecurity issues, and the pathetic state of the healthcare system.
- India has multiple institutions dealing with biosafety and biosecurity threats but there is no coordination among them. For instance, implementation of biosafety guidelines is the responsibility of the Science and Technology Ministry and the Environment Ministry.
- However, labs dealing with biological research are set up under the Indian Council of Medical Research and the Indian Council of Agricultural Research, which are under the Ministries of Health and Agriculture, respectively.
- This highlights two issues pertaining directly to biosecurity.
  - One, the multiplicity of bodies and ministers makes coordination difficult, especially in the absence of an empowered coordinating body.
  - Two, given the rising risk of diseases of zoonotic origin, the traditional ministry-wise separation might not be useful.
  - Another important question is whether India, with its porous borders and ill-trained border control institutions, is prepared for defending against pathogens or dangerous biological organisms or agents arriving from abroad. COVID-19 should serve as a wake-up call.

### **Cyber resilience**

(Source: [The Hindu](#) )

**Context:** *A string of high-profile cyberattacks in recent months has exposed vulnerabilities in the critical infrastructure of even advanced nations. This has reinforced the need for improved defences against actual, and potential, cyberattacks by all countries across continents.*

### **America under attack**

- Several high-profile cyberattacks were reported from the United States during the past several months. Towards the end of 2020, for instance, a major cyberattack headlined ‘SolarWinds’ — and believed to have been sponsored from Russia — had rocked the U.S.
- It involved data breaches across several wings of the U.S. government, including defence, energy and state. Before the U.S. could even recover from this breach, thousands of U.S. organisations were hacked



in early 2021 in an unusually aggressive cyberattack, by a Chinese group Hafnium, which had exploited serious flaws in Microsoft's software, thus gaining remote control over affected systems.

- In quick succession, thereafter, the U.S. has witnessed three more major attacks: an audacious ransomware attack by Russia/East Europe-based cybercriminals, styled DarkSide, on Colonial Pipeline (which is the main supplier of oil to the U.S. East Coast), compelling the company to temporarily shut down operations.
- The siege was lifted after Colonial Pipeline paid out several million dollars as ransom to unlock its computers and release its files. There are reports of the ransom being received in bitcoins which was later seized by the U.S government.
- Another Russia-backed group, Nobellium, next launched a phishing attack on 3,000 e-mail accounts, targeting USAID and several other organisations. Early this month, JBS SA, the U.S. subsidiary of a Brazilian meat processing company, was the target of a ransomware attack; the company also paid a ransom in millions.

### **Now, civilian targets**

- These attacks were all primarily on civilian targets, though each one was of critical importance.
- Obviously cyber, which is often referred to as the fifth domain/dimension of warfare, is now largely being employed against civilian targets, bringing the war into our homes. Most nations have been concentrating till date mainly on erecting cyber defences to protect military and strategic targets, but this will now need to change.
- The obsession of military cyber planners has been to erect defences against software vulnerabilities referred to as 'Zero-day', that had the capability to cripple a system and could lie undetected for a long time. (The most celebrated Zero-day software of this kind to date is Stuxnet, which almost crippled Iran's uranium enrichment programme some years back).
- Today, other Zero-day software, no doubt exist, though little is known about them. What is, however, evident is that a whole new market currently exists for Zero day software outside the military domain, and the world must prepare for this eventuality.
- Defending civilian targets, and more so critical infrastructure, against cyberattacks such as ransomware and phishing, including spear phishing, apart from unknown Zero day software, is almost certain to stretch the capability and resources of governments across the globe, somewhat in the manner that nations have been forced to find the resources and the methods to deal with the COVID-19 pandemic.
- One related problem is that the distinction between military and civilian targets is increasingly getting erased and the consequences of this could be indeterminate. For instance, the 2012 cyberattack on Aramco, employing the Shamoon virus, which wiped out the memories of 30,000 computers of the Saudi Aramco Oil Corporation, has ever since been one reason for the very frosty relations between different countries in West Asia and the Gulf region.
- Cyber warfare is replete with several damaging methodologies. In the civilian domain, two key manifestations of the 'cat and mouse game' of cyber warfare today, are ransomware and phishing, including spear phishing.
- Ransomware attacks have skyrocketed, with demands and payments going into multi-millions of dollars. India figures prominently in this list, being one of the most affected. Also experts believe that of late, the recovery cost from the impact of a ransomware attack — in India, for example, has tripled — and mid-sized companies, in particular, today face a catastrophic situation, if attacked, and may even have to cease operations.
- Thus, the need to be aware of the nature of the cyber threat to their businesses and take adequate precautionary measures, has become extremely vital. Banking and financial services were most prone to ransomware attacks till date, but oil, electricity grids, and lately, health care, have begun to figure prominently.

### **Zeroing in on health care**



- What is specially worrisome at this time, when a pandemic is raging, is the number of cyberattacks on health-care systems. With data becoming a vital element in today's world, personal information has become a vital commodity.
- One of the more vulnerable areas where data tends to be linked to a specific individual is in health care. Compromised 'health information' is proving to be a vital commodity for use by cybercriminals. All indications are that cybercriminals are increasingly targeting a nation's health-care system and trying to gain access to patients' data.
- The available data aggravates the risk not only to the individual but also to entire communities.
- It would be a mistake to believe that we can hope for a respite from cyberattacks such as ransomware and phishing. Cybercriminals are becoming more sophisticated, and are now engaged in stealing sensitive data in targeted computers before launching a ransomware attack. This is resulting in a kind of 'double jeopardy' for the targeted victim.
- Also, today's cybercriminals, specially those specialising in ransomware and similar attacks, are different from the ordinary run-of-the-mill criminals. Many are known to practise 'reverse engineering' and employ 'penetration testers' to probe high secure networks.
- The bad news is that the cyber landscape is poised to undergo more fundamental changes. Motivation for cyberattacks vary: for (some) nation states, the motivation is geopolitical transformation; for cybercriminals, it is increased profits; for terror groups, the motivation remains much the same, but the risk factor may be lower.
- However, it is 'insider threats' — due to discontent with the management or for personal reasons — that could well become an omnipotent reality.

### **Need for data protection**

- Cybersecurity essentially hinges on data protection. As data becomes the world's most precious commodity, attacks on data and data systems are bound to intensify. Reportedly, we create more than three quintillion bytes of data everyday (some put it at over 2.5 quintillion) — with several billion devices interconnected to billions of end point devices exchanging petabytes of sensitive data, on the network.
- This is only bound to grow. Ensuring data protection could, hence, prove to be a rather thankless task, complicating the lives of Information and other security professionals.
- The data life cycle can broadly be classified into data at rest (when it is being created and stored), data in motion (when it is being transmitted across insecure and uncontrolled networks), and data in use (when it is being consumed). Constant exposure lends itself to ever increasing data thefts and abuse.
- With mobile and cloud computing expanding rapidly, and also given the nature of the on-going pandemic, cybersecurity professionals are now engaged in building a 'Zero Trust Based Environment', viz., zero trust on end point devices, zero trust on identity, and zero trust on the network to protect all sensitive data.
- What is of interest is that there do exist quite a few niche companies today, which have developed (or are developing) newer technologies to create a Zero Trust Based environment employing: software defined solutions for agile perimeter security, secure gateways, cloud access security, privileged access management, threat intelligence platforms, static and dynamic data masking, etc.
- The moot point is whether not only those in authority but even more so those in the world of business, (specially oil and finance, and specifically health care) are aware of this — and, more important, are ready to utilise these technologies — to ward-off a cyberattack and safeguard their data.

### **Preparation is needed**

- Building deep technology in cyber is essential. New technologies such as artificial intelligence, Machine learning and quantum computing, also present new opportunities.
- Nations that are adequately prepared — conceptually and technologically — and have made rapid progress in artificial intelligence and quantum computing and the like will have a clear advantage over states that lag behind in these fields.



- Pressure also needs to be put on officials in the public domain, as also company boards, to carry out regular vulnerability assessments and create necessary awareness of the growing cyber threat.
- In the end, it might be appropriate to quote IBM Chairman, Arvind Krishna, that cybersecurity will be “the pressing issue of this decade” and that “value lies in the data and people are going to come after that data”.

## **Bitcoin push**

(Source: [The Hindu](#) )

**Context:** *On June 9, El Salvador became the first sovereign nation to make a cryptocurrency legal tender. The law pushed by its 39-year-old President, Nayib Bukele, passed with 62 out of 84 votes. It mandates that Bitcoin should now be accepted as a valid payment by all establishments, except those that do not have the technical wherewithal to do so. This puts the digital currency that does not answer to any government monetary policies on the same footing as the country’s primary currency, the United States dollar.*

### **Why is the U.S. dollar the currency in El Salvador?**

- El Salvador fully ‘dollarised’ its economy in 2001. Countries adopt the U.S. dollar as their official currency for several reasons, such as when their local currencies fail (for example, Zimbabwe, which saw inflation in multimillion percentages), or to take advantage of the stability that it offers and attract investments.
- One of the downsides is that the economies of ‘dollarised’ countries get linked to the monetary policies of the Federal Reserve in Washington.
- The U.S. central bank could set rates that may benefit the U.S. economy but end up hurting economies that use the same currency.

### **What is the rationale for using Bitcoin?**

- The Bill that Mr. Bukele proposed said that “Central banks are increasingly taking actions that may cause harm to the economic stability of El Salvador” and that Bitcoin was being adopted “in order to mitigate the negative impact from central banks”.
- The country’s economy is also heavily reliant on remittances from El Salvadoreans working abroad.
- According to World Bank data, remittances made up almost \$6 billion in 2019, which was about 20% of the country’s GDP — one of the highest ratios in the world. By enabling the transfer of money via Bitcoins, Mr. Bukele says El Salvadoreans will save on transaction fees of banks and agencies.
- Politically, the current government in El Salvador and the Joe Biden administration in the United States are at odds.
- Recently, some of President Bukele’s right-hand men found mention in a U.S. State Department list of corrupt officials in central America. The United States’s international aid agency is also moving money away from the Bukele government after it voted to remove all members of the Supreme Court.

### **How does Bitcoin work?**

- Bitcoin is the first and biggest of decentralised cryptocurrencies, which are online payment systems that are increasingly becoming mainstream. Ethereum, Tether, and Binance Coin are some of the many others that have emerged after Bitcoin.
- Cryptocurrencies are built on the back of blockchain technology, a system of distributed, cryptographically-secured account keeping.
- In this system, the users keep a tab on every digital ‘coin’ and transaction rather than a banking system with a governing body at its centre.



### Why are governments wary?

- Due to their core nature that shuns centralised control, governments globally have been wary of cryptocurrencies.
- A report from the U.S. Library of Congress notes that most countries have warned their citizens against investing in cryptocurrencies, let alone allowing transactions in them. Some have tried to use the technology to create government-sanctioned digital currencies.
- China, a hub of cryptocurrency activity, has issued a digital Yuan on blockchain while it cracks down on other cryptocurrencies. The Bank of England has also proposed a digital Sterling.
- However, many countries, including India, have allowed the treatment of cryptocurrencies as commodities, resulting in a rising tide of investment in them. After its introduction in 2009, Bitcoin saw its biggest gain in value last year, having started 2020 at \$7,200 per coin and touching \$65,000 in April of 2021, before falling to \$30,000 in May.
- Cryptocurrencies as commodities are highly volatile, a recent example being the massive swings in the values of Bitcoin and Dogecoin, based merely on the tweets of cryptocurrency ‘evangelist’ Elon Musk.
- Another problem is the increasing energy use associated with cryptocurrencies. The ‘mining’ of Bitcoin, where individuals or companies set up powerful systems to support the blockchain network, for which they are rewarded in the currency, consumes “about the same amount of energy annually as the Netherlands did in 2019”, says a Reuters report citing data from the University of Cambridge and the International Energy Agency.
- “Bitcoin production is estimated to generate between 22 and 22.9 million metric tonnes of carbon dioxide emissions a year, or between the levels produced by Jordan and Sri Lanka,” says the report.

### Energy inefficiency can short circuit cooling India

(Source: [The Hindu](#) )

**Context:** *More frequent and intense heat waves are expected with a rise in global temperatures due to climate change. In the last three decades, there have been 660 heat waves across India causing 12,273 deaths. India, with currently low penetration levels of air conditioners (ACs), will likely require substantial cooling services to keep citizens healthy and productive. The India Cooling Action Plan projects the number of room air conditioners to become about four times in the next 10 years, and about 10 times in the next 20 years, making India the world’s largest energy user for cooling.*

### Scant data

- Here lies a conundrum. Cooling will likely be at the forefront of India’s adaptation to climate change, but if cooling needs are met with inefficient ACs, it could be the bane of India’s mitigation efforts.
- Indian homes will be an important site where this conundrum between cooling needs and potential emissions will play out.
- Despite its clear importance, the implications of an increase in residential cooling demand have not been carefully examined.
- Estimates of AC ownership and usage, the two factors which will determine the extent of future cooling demand, have little empirical backing. We know little about what cooling appliances people seek, and how and why people make their purchase decisions.
- The pursuit of energy efficiency, too — for instance, who buys efficient technologies and why — remains underexplored.

### Delhi survey results



- The findings are based on a door-to-door household survey in areas of Delhi, with above average levels of AC penetration.
- We find that the desired levels of cooling vary greatly even among relatively homogenous communities. In Delhi's wealthy neighbourhoods, 43% of the households own an AC, 39% own coolers and 18% only have a fan. Further, the way households use ACs also differs quite a bit.
- While most households use an AC for three to four hours a day during peak summer months, about 15% use ACs for over eight hours a day.
- It is interesting to note that the India Cooling Action Plan in its estimation of residential cooling demand, assumes that an average household uses an AC for eight hours a day, which as per our study seems to be an upper bound.
- People prefer different AC set-point temperatures, again indicative of varying perceptions of thermal comfort. Half of the households set their ACs between 24°C-26°C, and 27% prefer their AC temperature to be between 21°C-23°C.
- This wide range of preferred AC temperatures have important implications on energy demand requirements, as every 1°C increase in AC set-point temperature can lead to additional 6% energy savings.
- Unfortunately, energy efficiency does not feature as a priority in the purchase of cooling appliances. Only 7% of the households have an energy efficient (star-rated) fan, and 88% of the coolers are locally assembled. Most people prefer to buy a three-star AC, and less than 20% of AC-owning households bought the highest rated five-star AC.

#### **An obstacle**

- Large-scale adoption of efficient cooling appliances will be essential to providing the required thermal comfort in a low carbon manner. We find that low levels of energy efficiency awareness are a major bottleneck that hinders the purchase of more efficient appliances.
- A third of the households did not know of the Star Labelling programme, which is a government programme mandatory for refrigerators and air conditioners. Of the households that had heard of the programme, only half of them understood what it meant. We find that it is this set of informed households that are more likely to own a higher efficiency AC, and also likely to use the appliance efficiently.
- Higher upfront cost and low market availability of more efficient air conditioners (four-star and five-star) are other reasons for buying a less efficient AC.
- We find that many households also use alternative cooling strategies to keep cool, with the use of a fan being the favourite non-AC cooling option, and use of non-energy cooling methods such as natural ventilation being a common practice. Households using such non-AC cooling methods were found to use their AC for fewer hours.

#### **Other solutions**

- The impending cooling demand transition in India offers a potential advantage. Because a majority of investments in cooling technologies, infrastructure, and behaviours are yet to be made, there is a unique opportunity to lock-in energy efficient consumption patterns.
- Awareness campaigns on the benefits of energy efficiency along with subsidies and financial incentives that help with the higher upfront costs can help drive up the adoption of more efficient technologies.
- Encouraging the use of passive cooling alternatives including energy efficient building designs can help provide the desired thermal comfort with reduced dependence on energy intensive cooling technologies

## Current Affairs Quiz

1) Which of the following statements is/are correct with respect to PENCIL Portal?

1. It is an electronic platform developed for the enforcement of legislative provisions of National Child Labour Policy (NCLP).
2. It works under the control of the Ministry of Labour & Employment.

Select the correct answer code:

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

Answer : c

2) *Pyrostria laljii*, a tree that belongs to the genus of the coffee family has recently been discovered from-

- a. Goa
- b. Kerala
- c. Karnataka
- d. Andaman Islands

Answer : d

3) Which of the following statements is/are correct with respect to EnVision Mission?

1. It is ISRO's Mission to Venus with contributions from European Space Agency.
2. The mission will monitor trace gases in the atmosphere and analyse its surface composition.

Select the correct answer code:

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

Answer : b

It is European Space Agency (ESA) led mission with contributions from NASA.

4) Consider the following statements with respect to Protection of Heritage Trees Scheme:

1. Under the proposal a tree with an estimated age of 50 years or more shall be defined as a heritage tree.
2. The heritage tree may belong to specific species, which will be notified from time to time.

Which of the statements given above is/are correct?

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

Answer : c

5) The certifying agency for Agricultural Marketing (AGMARK) is-

- a. Bureau of Indian Standards
- b. Ministry of Commerce and Industry
- c. Directorate of Marketing and Inspection
- d. Ministry of Food processing Industries

Answer : c



6) Which of the following statements is/are correct with respect to UN Convention of Combating Desertification (UNCCD)?

1. It is the first and only internationally legally binding framework set up to address the problem of desertification.
2. India holds the current presidency of UN Convention of Combating Desertification (UNCCD).

Select the correct answer code:

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

Answer : c

7) Which of the following statements is/are correct with respect to Hallmarking Scheme?

1. It is a scheme of Bureau of Indian Standards (BIS).
2. The Government of India has recently made Hallmarking of Gold Jewellery mandatory.

Select the correct answer code:

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

Answer : c

8) Consider the following statements with respect to Operation Olivia:

1. The operation was initiated in the early 1980s and followed every year by the Indian Coast Guard (ICG).
2. The operation helps to protect Olive Ridley turtles as they congregate along the Odisha coast for breeding and nesting from November to December.

Which of the statements given above is/are correct?

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

Answer : c

9) Consider the following statements with respect to Tulu Language:

1. Tulu is an Indo-Aryan language spoken mainly in Odisha and Andhra Pradesh.
2. It is one among the 22 languages presently listed under the eighth schedule of the Indian Constitution.

Which of the statements given above is/are correct?

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

Answer : d

It is a **Dravidian language** spoken mainly in two coastal districts Dakshina Kannada and Udupi of Karnataka and Kasaragod district of Kerala.

At present, Tulu is not an official language in the country.

The Tulu speakers, mainly in Karnataka and Kerala, have been **requesting the governments to give it official language status and include it in the eighth schedule to the Constitution.**

10) World Giving Index is published by-

- a. Oxfam

- b. Amnesty International
- c. Charities Aid Foundation
- d. Green Peace International

Answer : c

11) Which of the following statements is/are incorrect with respect to Food and Agriculture Organization (FAO)?

- 1. It is one of the major outcomes of the 1974 World Food Conference.
- 2. It is headquartered in Geneva, Switzerland.
- 3. India is one of the associate member of Food and Agricultural Organization.

Select the correct answer code:

- a. 1 and 2 only
- b. 1 and 3 only
- c. 2 and 3 only
- d. 1, 2 and 3

Answer : d

It is a specialized agency of the United Nations that leads international efforts to defeat hunger.

It was established in **1945** and its headquarters is in **Rome, Italy**.

**India is a founder member of the FAO** and has played significant role since inception as Chair and member of various statutory bodies and committees.

12) Consider the following statements with respect to AdiPrashikshan Portal:

- 1. It acts as a Central Repository of all training programs conducted by the Marine Products & Agricultural and Processed Food Products Export Development Authority (MPEDA).
- 2. The portal functions under the Ministry of Commerce and Industry.

Which of the statements given above is/are correct?

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

Answer : d

The portal was developed by the Ministry of Tribal Affairs.

It would act as a Central Repository of all training programs conducted by Tribal Research Institutes (TRIs), different divisions of Ministry, National Society for Education of Tribal Students (NESTS), Centre of Excellences funded by Ministry of Tribal Affairs and National Tribal Research Institute.

13) Which of the following statements is/are correct with respect to Deep Ocean Mission?

- 1. It is a mission mode project to explore deep ocean for resources and develop deep sea technologies for sustainable use of ocean resources.
- 2. Ministry of Science & Technology will be the nodal ministry for implementing this ambitious mission.

Select the correct answer code:

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

Answer : a

Ministry of Earth Sciences (MoES) will be the nodal Ministry implementing this multi-institutional ambitious mission.

14) GeM- SAHAY Project is tailored to meet the specific needs of-

- a. Self Help Groups

- b. UNICORN Startups
- c. Minor Forest Producer Organizations
- d. Micro, Small and Medium Enterprises

Answer : d

- 15) Children and Digital Dumpsites Report is published by-
- a. World Health Organization (WHO)
  - b. International Solid Waste Association (ISWA)
  - c. International Telecommunication Union (ITU)
  - d. UN Educational, Scientific and Cultural Organization (UNESCO)

Answer : a

16) Which of the following statements is/are correct with respect to Unlawful Activities (Prevention) Act (UAPA) ?

- 1. Under UAPA, the period of probe and detention of the accused can be extended up to 180 days.
- 2. Investigation of cases under UAPA, may be conducted by officers of the rank of Deputy Superintendent or Assistant Commissioner of Police or above.

Which of the statement(s) given above is/are correct?

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

Answer : c

17) National Maritime Heritage Complex will be established at -

- a. Muziris
- b. Lothal
- c. Bharuch
- d. Arikamedu

Answer : b

18) New Shephard, is associated with-

- a. Space Station
- b. Space Tourism
- c. Space Telescope
- d. Space Defence Agency

Answer : b

19) Which of the following statements is/ are correct with respect to PASIPHAE?

- 1. It is an international collaborative sky surveying project steered by the NASA and ISRO.
- 2. It will be used in upcoming sky surveys to capture polarisation (B-mode signal) coming from very faint stars

Select the correct answer code:

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

Answer : b

Polar-Areas Stellar-Imaging in Polarisation High-Accuracy Experiment (PASIPHAE) is an international collaborative sky surveying project steered by the Institute of Astrophysics, Greece.

20) World Competitiveness Index 2021 is released by -

- a. Institute for Management Development (IMD)
- b. World Economic Forum (WEF)
- c. International Monetary Fund (IMF)
- d. World Bank

Answer : a

