

March (Week 5)

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Prelims

NATIONAL

NETRA project

(Source: [The Hindu](#))

Context: *With space junk posing increasing threat to Indian assets in space, the Indian Space Research Organisation (ISRO) is building up its orbital debris tracking capability by deploying new radars and optical telescopes under the Network for Space Objects Tracking and Analysis (NETRA) project.*

Details:

- A space debris tracking radar with a range of 1,500 km and an optical telescope will be inducted as part of establishing an effective surveillance and tracking network under NETRA.
- The government has given the go-ahead for the deployment of the radar, which will be capable of detecting and tracking objects 10 cm and above in size, he said. It will be indigenously designed and built.
- Radars and optical telescopes are vital ground-based facilities for keeping an eye on space objects, including orbital junk.
- Data released by ISRO last week also point to an increasingly grim scenario. For protecting its space assets, ISRO was forced to perform 19 collision avoidance manoeuvres (CAM) in 2021, of which 14 were in Low Earth Orbit (LEO) and five in the geostationary orbit, according to ISRO's Space Situational Assessment for the year. The number of CAMs jumped from just three in 2015 to 12 in 2020 and 19 in 2021.
- Last year, the space agency monitored 4,382 events in LEO and 3,148 events in the geostationary orbit where space objects closely approached Indian assets. Fragments from the Fengyun-1C satellite (part of the anti-satellite test (ASAT) by China in 2007) and the Cosmos 2251-Iridium satellite collision in 2009 accounted for the maximum number of these threats.
- The observations also covered 84 "close approaches of less than one km" between Starlink satellites and Indian assets.
- Space junk or debris consists of spent rocket stages, dead satellites, fragments of space objects and debris resulting from ASAT.
- Hurtling at an average speed of 27,000 kmph in LEO, these objects pose a very real threat as collisions involving even centimetre-sized fragments can be lethal to satellites.
- ISRO's efforts towards space situational awareness (SSA) is coordinated by the SSA Control Centre in Bengaluru and managed by the Directorate of Space Situational Awareness and Management at the ISRO headquarters.
- ISRO officials say the volume of debris is likely to go up in the coming years with the increase in space missions globally.
- Globally, 2021 saw the highest space object-to-launch ratio, the ISRO report noted.

Medium Range Surface to Air Missile

(Source: [Indian Express](#))

Context: *The Defence Research and Development Organisation (DRDO) on March 27 conducted two successful flight tests of the Army version of Medium Range Surface to Air Missile (MRSAM) at the Integrated Test Range, Chandipur, off the coast of Odisha.*

What kind of flight tests were carried out today for MRSAM?

- The tests were part of the live firing trials against high-speed aerial targets. The missiles are reported to have intercepted and destroyed the targets.
- The first launch was to intercept a medium-altitude long-range target and the second launch was for providing capability of a low-altitude short-range target.
- These tests were user trials by the Indian Army.

What is a MRSAM?

- The MRSAM is a surface-to-air missile jointly developed by DRDO and Israel Aerospace Industries (IAI) for use by the Indian Army.
- The missile will replace the ageing Air Defence systems of the Army.
- The MRSAM weapon system comprises multi-function radar, mobile launcher system and other vehicles.
- It has Army, Navy and Air Force variants.
- The mobile launcher can transport, place and launch eight canisterised missiles. These can be fired either in single mode or in ripple firing mode in a vertical firing position.
- The missile's management system uses the radar to track and correctly identify the target, calculates the distance from it and gives all the information to the Commander for a decision to be made on interception.
- The missile itself is 4.5 metres in length with a weight of around 275 kg. It is equipped with fins and canards to stabilise its flight and provide it manoeuvrability.

How is the MRSAM powered?

- The missile is powered by a solid propulsion system coupled with a thrust vector control system.
- The missile can move at a maximum speed of Mach 2 (twice the speed of sound). It can engage multiple targets upto a range of 70 km.

How mitochondria adapted to living within cells

(Source: [The Hindu](#))

Context: *An organism that has been around from 2 billion years ago has given biologists from Centre for Cellular and Molecular Biology, Hyderabad (CCMB), a clue as to how mitochondria became an inseparable part of animal and plant cells. The researchers, led by Rajan Sankaranarayanan, identify two key transformations, one in the molecule known as DTD for short and another in the transfer-RNA (tRNA).*

Details:

- Today, mitochondria are well known to be integral parts of the eukaryotic cell. They are dubbed the power houses of the cell, because they help in generating energy in the form of ATP within the cell, powering it.

- But they were not always part of the animal and plant cells. Once, about two billion years ago, a prokaryotic organism (without a nucleus) called archaea captured a bacterial cell.
- The bacterial cell learnt to live within the archaea as an endosymbiont. How this happened has been an important question among biologists.

Ancient organism

- By studying an organism known as jakobid, which has been around since before animals and fungi branched off from plants and algae in the process of evolution, the researchers have identified two adjustments that had to take place to facilitate the integration of the two organisms.
- These adjustments were made in the process of optimisation when the two organisms merged together, evidently for compatibility.
- The researchers show that these changes, in a protein (DTD) and a tRNA (carrying an amino acid glycine for protein synthesis) are crucial for the successful emergence of mitochondria.
- Amino acids come with two types of handedness – left-handed and right-handed. Accordingly, their names have a prefix of L or D.
- All life forms function with only the L-amino acids, in addition to achiral glycine, in proteins. Performing the role of a proofreader, the protein DTD removes D-amino acids from entering protein synthesis. Before it got incorporated into the eukaryotes, when it was part of the bacterial cell, DTD would not act on glycine which is essential for protein synthesis.
- This preference was changed so that it would be compatible with the eukaryotic cell.

Switch in base

- The other change identified by the researchers is that mitochondrial tRNA(Gly) has changed its critical nucleotide base from U73 to A73, in order to be compatible with eukaryotic DTD.
- This switch in the so-called discriminator base of mitochondrial tRNA(Gly) is important for avoiding removal of glycine and thus stopping protein synthesis in mitochondria – which can be toxic.
- This means that before the change took place in the nucleotide base, glycine would be removed, which would have been toxic for the cell as protein synthesis would not take place without glycine.

Case of plant cells

- The researchers plan to investigate these evolutionary dynamics in plant cells. Plant cells have two DTDs and two organelles equipped with translation apparatus of their own.
- The work for first time shows how such molecular optimisation strategies are essential, when derived from different ancestors like archaea and bacteria, for the successful emergence of mitochondria and hence all of eukaryotic life.

States can identify minorities: govt.

(Source: [The Hindu](#))

Context: *The governments in nine places where followers of Hinduism, Baha'ism and Judaism are a 'minority', can consider laying down guidelines to identify them as minority communities at the State level, the Centre has told the Supreme Court.*

Details:

- “Matters like declaring that followers of Judaism, Baha'ism and Hinduism who are minorities in Ladakh, Mizoram, Lakshadweep, Kashmir, Nagaland, Meghalaya, Arunachal Pradesh, Punjab and Manipur can

establish and administer educational institutions of their choice in the State and laying down guidelines for identification of minority at State level may be considered by the State government concerned,” the Ministry of Minority Affairs told the Supreme Court.

- The Centre was responding to a petition filed by advocate Ashwini Upadhyay that the followers of Judaism, Baha’ism and Hinduism — who are the real minorities in Ladakh, Mizoram, Lakshadweep, Kashmir, Nagaland, Meghalaya, Arunachal Pradesh, Punjab and Manipur — cannot establish and administer educational institutions of their choice.
- The Centre said the allegation was “not correct”.
- The government’s affidavit explained that Parliament and State legislatures have concurrent powers to enact law to provide for the protection of minorities and their interests.
- “Religious and linguistic minorities are spread all over the country and are not related or restricted to any single State or Union Territory. A religious group that is in majority in one State may be in minority in another State,” the Centre submitted.
- The Centre gave the example of how Maharashtra notified ‘Jews’ as a minority community within the State. Again, Karnataka notified Urdu, Telugu, Tamil, Malayalam, Marathi, Tulu, Lambadi, Hindi, Konkani and Gujarati as minority languages within the State.
- The government also defended the constitutionality of Section 2(f) of the National Commission for Minority Educational Institutions Act and Section 2(c) of the National Commission for Minorities Act of 1992.
- Mr. Upadhyay had argued that the Centre has reserved for itself unbridled power to declare a community as a minority.
- The Centre responded that Parliament was empowered under Article 246 of the Constitution read with Entry 20, “economic and social planning”, of the Concurrent List to enact laws to promote and protect the interests of minorities.
- The government said both Acts came into existence out of Parliament’s intentions to safeguard minority interests.
- Parliament has the legislative competence and the Central government has the executive competence to notify a community as a minority under Section 2(c) of the National Commission for Minorities Act of 1992.
- “The Central government notified six communities, namely Muslims, Christians, Sikhs, Buddhists, Parsis and Jains, as minorities under Section 2(c) of the National Commission for Minorities Act of 1992,” the affidavit said.

Articulated All-Terrain Vehicles

(Source: [Indian Express](#))

Context: *The Indian Army has issued a Request For Information (RFI) for the supply of Articulated All-Terrain Vehicles to be deployed in Ladakh and Kutch.*

What are Articulated All Terrain Vehicles?

- Articulated All-Terrain Vehicle is a twin cabin, tracked, amphibious carrier for off road mobility.
- The special design of this equipment exerts low ground pressure on the soil and a pull-push mode of locomotion between two cabins facilitates mobility over varied terrains like snow, desert and slush.
- A ballistic protection in the cabin body ensures protection to troops travelling in it from small arms fire.
- These vehicles are very useful to move troops or supplies in snow-bound terrains and in marshy/sandy environments.

- They can reach where wheeled vehicles cannot due to deep snow, slush or marshy terrain and can be very effective for patrolling and rapid deployment in operational situations.

Where does the Indian Army wish to use these vehicles?

- As per the RFI issued by the Army on March 25, it requires 18 Articulated All-Terrain Vehicles.
- The RFI document specifies that 12 vehicles need to be supplied to Nimu in Ladakh and six to Bhuj in Gujarat.
- This shows that the Army wishes to use these vehicles in the snow-bound areas of Ladakh and in the marshy terrain of the Rann of Kutch.

What are the requirements of the Army from the vehicles?

- As per the specifications in the RFI, the vehicle should be able to perform at heights of 18,000 feet in glaciated and snow bound conditions and in salty/dry marshes.
- The vehicles should be able to seat 10 soldiers with full combat load (excluding the crew) and should have inbuilt ballistic protection.
- It should have an operating range of not less than 150 kms in cross country terrain in plains and at an altitude of 15,000 to 18,000 feet in the mountains. The vehicles should have a service life of at least 15 years.

Who manufactures such vehicles?

- There are several Western manufacturers of Articulated All-Terrain Vehicles including Canada and Finland.
- The NASU vehicle of Finland is used by the Finnish, French, Belgian and US Armies among others.
- The Bandvagn 206 is used by the Swedish Army and was developed by a Swedish Company which is now part of BAE Systems, Platforms and Services. The British and US militaries also use the Bandvagn 206. The Russian Army uses the DT-30 Vityaz vehicle and GAZ 3344 manufactured in the country.

The Criminal Procedure (Identification) Bill, 2022

(Source: [The Hindu](#))

Context: *The Criminal Procedure (Identification) Bill, 2022, that would allow the police and prison authorities to collect, store and analyse physical and biological samples, including retina and iris scans, was introduced in the Lok Sabha amid strong protests from Opposition members, who forced a vote on the issue and termed the Bill “unconstitutional”.*

Details:

- The Bill also seeks to apply these provisions to persons held under any preventive detention law.
- The National Crime Records Bureau (NCRB) will be the repository of physical and biological samples, signature and handwriting data that can be preserved for at least 75 years.
- Opposition members argued that the Bill was beyond the legislative competence of Parliament as it violated fundamental rights of citizens, including the right to privacy.
- The Bill seeks to repeal the Identification of Prisoners Act, 1920 whose scope was limited to recording finger impressions and footprint impressions of limited category of convicted and non-convicted persons and photographs on the order of a magistrate.
- The Statement of Objects and Reasons of the Bill said that new “measurement” techniques being used in advanced countries are giving credible and reliable results and are recognised world over.

- The Bill seeks to expand the “ambit of persons” whose measurements can be taken as this will help the investigating agencies to gather sufficient legally admissible evidence and establish the crime of the accused person.
- The Bill seeks to define “measurements” to include finger impressions, palm print and footprint impressions, photographs, iris and retina scan, physical, biological samples and their analysis and empowers the NCRB to collect, store and preserve the record of measurements and for sharing, dissemination, destruction and disposal of records.
- It empowers a Magistrate to direct any person to give measurements and also empowers the police or prison officer to take measurements of any person who resists or refuses to give measurements.

Rhino population in Kaziranga

(Source: [The Hindu](#))

Context: *The population of the greater one-horned or Indian rhinoceros in the Kaziranga National Park and Tiger Reserve has increased by 200 in four years, the latest census of the World Heritage Site’s flagship animal has revealed.*

Details:

- The last rhino census conducted in 2018 had put the number at 2,413.
- Though the tiger reserve measures 1,355 sq. km, the census was confined to a rhino-bearing area of 864 sq. km. It was conducted from March 25 to 28 but the counting was done on the two days in between.
- Fifty elephants were deployed to cover all the 84 compartments of the park, its addition areas and civil areas. Apart from 125 enumerators and independent observers, 252 frontline staff were involved in the exercise.
- This year’s census had a first — the use of drones for the recheck of 26 park compartments where the sample survey was done.
- Of the rhinos estimated, 1,823 were adults, 365 were sub-adults, 279 juveniles and 146 calves. The females outnumbered the males by 183. The gender of 273 adults and sub-adults could not be specified.
- A similar census was conducted in two more of Assam’s rhino habitats earlier in March.

The Edict of Chandigarh

(Source: [Indian Express](#))

Context: *“The seed of Chandigarh is well sown. It is for the citizens to see that the tree flourishes” Le Corbusier, creator of Chandigarh said as he laid down the Edict of Chandigarh. The Punjab government’s resolution to install three statues in the Assembly Building of Capitol Complex, Chandigarh, a UNESCO World heritage site, hasn’t gone down well with heritage experts and architects as they say it tramples the Edict of Chandigarh.*

Who conceptualised the Edict of Chandigarh and what is its aim?

- The Edict of Chandigarh was prescribed by Le Corbusier, the planner of Chandigarh. Heritage experts and urban planners term it a ‘mandated rule book’ on the city’s planning laid down by Corbusier as he wanted the citizens to become the guardians and saviours of the city.
- It was stated in the Edict that the objective of the same is “to enlighten the present and future citizens of Chandigarh about the basic concepts of planning of the city so that they become its guardians and save it from the whims of individuals”. This Edict sets out some basic ideas that are underlying the planning of the city.

What does the Edict say about installing statues?

- The Edict clearly specifies that ‘the age of statues is gone’. It mentions that no personal statues shall be erected, be it in the city or even the parks of Chandigarh.
- “The city is planned to breathe the new sublimated spirit of art. Commemoration of persons shall be confined to suitably placed bronze plaques,” the Edict states.

What is allowed and not allowed under the Edict of Chandigarh?

- Not just statues, the Edict specifies a set things which are allowed and those that are not.
- Apart from the ban on statues, the Edict also specifies a complete ban on noise and commercialisation at the Sukhna Lake.
- “The lake is a gift of the creators of Chandigarh to the citizens to be at one with nature, away from the hubbub of city life. There shall be no commercial exploitation of the lake and its environment and its tranquility shall be guaranteed by banning noises,” the Edict specifies.
- It also talks about particular parks in the city, like Leisure Valley, Rajendra Park and others and how no unplanned buildings are permitted.

Inclusion of government procurement in India’s trade pact with the UAE

(Source: [Indian Express](#))

Context: *The India-UAE Comprehensive Economic Partnership Agreement (CEPA), set to come into force on May 1, includes a chapter on government procurement, granting UAE-based companies treatment on par with domestic companies. This is the first instance of India including government procurement in a Free Trade Agreement (FTA).*

Why is inclusion of government procurement in the India-UAE CEPA significant?

- India has previously been unwilling to discuss government procurement in bilateral or multilateral trade agreements to protect domestic firms which rely on it. India is also not a signatory to the World Trade Organisations Government Procurement Agreement (GPA), but has been an observer since 2010.
- Experts note that the move marks a major shift in India’s stance on government procurement, which had also been a stumbling block in major FTA negotiations, including those with the European Union. Government procurement is estimated to be worth about 20-22 per cent of GDP.
- Opening up government procurement to the UAE meant that India would also have to open procurement to Japan and would likely be asked to open up the area in future agreements. India is currently negotiating FTAs with Australia, UK, Canada and the EU.
- India’s FTA with Japan requires that if India offers a third country any advantageous treatment in government procurement, then it would have to provide Japan an opportunity to enter negotiations for the extension of such treatment on a reciprocal basis.

What protections are included for the domestic industry in the FTA?

- Under the agreement, only government procurement contracts worth over about Rs 200 crore will be open to UAE-based companies on the same terms as Indian firms.
- The move is aimed at protecting the interests of MSMEs that supply goods and services to the government.
- The list of 34 ministries and departments for which government procurement would be open to UAE-based companies includes the ministries of power, health and education.
- The deal does not, however, cover procurement by all subordinate entities of these ministries and departments, including autonomous bodies, government-owned companies and public sector enterprises.
- The chapter on government procurement also grants India “the right to apply a preferential procurement policy for its MSMEs in accordance with its laws and regulations.”
- Experts, however, note that India may have to remove carve outs in government procurement in future trade deals with larger trading partners such as the EU.

The Assam-Meghalaya boundary dispute resolution

(Source: [The Hindu](#))

Context: Two months after signing a draft resolution on January 29, Assam and Meghalaya partially resolved a 50-year-old dispute along their 884.9 km boundary. An agreement in this regard, termed historic, was signed between Assam Chief Minister Himanta Biswa Sarma and his Meghalaya counterpart Conrad K. Sangma in the presence of Home Minister Amit Shah in New Delhi on March 29. The agreement is expected to pave the way for resolving disputes in the remaining sectors of the Assam-Meghalaya boundary and similar areas of difference between Assam and three other northeastern States.

How did the boundary dispute start?

- Meghalaya, carved out of Assam as an autonomous State in 1970, became a full-fledged State in 1972.
- The creation of the new State was based on the Assam Reorganisation (Meghalaya) Act of 1969, which the Meghalaya government refused to accept. This was because the Act followed the recommendations of a 1951 committee to define the boundary of Meghalaya.
- On that panel’s recommendations, areas of the present-day East Jaintia Hills, Ri-Bhoi and West Khasi Hills districts of Meghalaya were transferred to the Karbi Anglong, Kamrup (metro) and Kamrup districts of Assam.
- Meghalaya contested these transfers after statehood, claiming that they belonged to its tribal chieftains. Assam said the Meghalaya government could neither provide documents nor archival materials to prove its claim over these areas.
- After claims and counter-claims, the dispute was narrowed down to 12 sectors on the basis of an official claim by Meghalaya in 2011.

How did the two governments go about handling the issue?

- The two States had initially tried resolving the border dispute through negotiations but the first serious attempt was in May 1983 when they formed a joint official committee to address the issue.
- In its report submitted in November 1983, the committee suggested that the Survey of India should re-delineate the boundary with the cooperation of both the States towards settling the dispute. There was no follow-up action.



- As more areas began to be disputed, the two States agreed to the constitution of an independent panel in 1985. Headed by Justice Y.V. Chandrachud, the committee submitted its report in 1987. Meghalaya rejected the report as it was allegedly pro-Assam.
- Following more disputes and resultant violence, the two governments agreed in January 1991 to jointly demarcate the border with the help of the Survey of India. About 100 km of the border was demarcated by the end of 1991, but Meghalaya found the exercise unconstitutional and refused to cooperate.
- In 2011, the Meghalaya Assembly passed a resolution for central intervention and the constitution of a boundary commission. The Assam Assembly retaliated with a resolution to oppose the move. But the Centre made the two governments appoint nodal officers to discuss the boundary dispute to minimise the points of difference.
- In 2019, the Meghalaya government petitioned the Supreme Court to direct the Centre to settle the dispute. The petition was dismissed.

Will the partial settlement impact border disputes elsewhere in the Northeast?

- According to the partial boundary deal, Assam will get 18.51 sq. km of the 36.79 sq. km disputed area while Meghalaya will get the remaining 18.28 sq. km.
- There is no clarity yet on the villages or uninhabited stretches that would be divided, but some political parties and community-based groups in Meghalaya are unhappy about acceding any part of the disputed areas to Assam.
- Reactions are similar in Assam, where the opposition Congress and local organisations said the agreement boiled down to how much land Assam could save from “aggressor” Meghalaya. But officials in Assam said it was better to let go of areas where they did not have any administrative control rather than “live with an irritant forever”.
- However, residents in the other six disputed sectors — Langpih, Borduar, Nongwah, Matamur, Deshdemoreah Block I and Block II, and Khanduli — feel the “give-and-take” template could spell disaster for them.
- The fear is more among non-tribal people who could end up living in a “tribal Meghalaya with no rights for us”. The apprehension is similar for residents of Assam in disputed areas along the border with other States.
- According to a paper tabled in the Assam Assembly in August 2014, six neighbouring States control 77,531.71 hectares of Assam land. Apart from Meghalaya, the other States are Arunachal Pradesh, Mizoram, Nagaland, Tripura and West Bengal.

Four govt.-run film units merged with NFDC

(Source: [The Hindu](http://www.thehindu.com))

Context: *The Ministry of Information and Broadcasting, through three different orders on Wednesday, transferred the mandate of production of documentaries and short films; organisation of film festivals; and preservation of films to the National Film Development Corporation (NFDC), which functions under the Ministry.*

The announcement had been expected since December 2020, when the Union Cabinet approved the merger of four of its film media units — Films Division (FD), Directorate of Film Festivals (DFF), National Film Archives of India (NFAI), and Children’s Film Society, India (CFSI) with NFDC.

Roles of film media bodies

- **FD:** The largest moving-image repository and audio-visual record of Indian history was established in 1948 to create public service awareness films, to film the decolonisation and nation-building process,

and to produce and distribute newsreels and documentary films. Colonial agencies such as the Film Advisory Board, Information Films of India, Indian News Parade, and Army Film and Photographic Unit, were handed over to it.

- FD employees will now be attached with NFDC's new Production Vertical, which will retain the Films Division brand name.
- **CFSI:** Formed in 1955, it was tasked with producing children's films and value-based entertainment, also for underprivileged children, in small towns and rural areas.
- **NFAI:** Established in 1964 under renowned curator P K Nair, it was tasked with tracing, acquiring, and preserving the heritage of fiction cinema in India. NFAI is a repository of thousands of films, books, scripts, posters, photographs dating back to the 1910s, and actively promotes film research and scholarship on Indian and South Asian cinema.
- **DFF:** It was established in 1973, and tasked with cultural exchange, promoting Indian cinema worldwide, organising the National Film Awards and Dadasaheb Phalke Awards, the Mumbai International Film Festival, and the International Film Festival of India in Goa. All of this will now be part of NFDC's mandate under its Promotion Vertical, with which DFF employees will be attached on a temporary basis
- **NFDC:** A PSU established in 1975, its earlier avatar was the Film Finance Corporation. Its job was to finance, produce, and distribute feature films, and to promote filmmakers outside the mainstream. It has made noteworthy contributions to parallel cinema, but has been unable of late to provide exhibition infrastructure to independent filmmakers. Through its Film Bazaar Work-in-Progress (WIP) Lab, NFDC has provided a platform for young talents to interact and learn.
 - The PSU was declared a loss-making asset by NITI Aayog in 2018, and its closure was proposed in the Parliament. With the other bodies now being merged with NFDC, it is now the "umbrella organisation".

Features of India-made light combat helicopters

(Source: [Indian Express](#))

Context: The Cabinet Committee on Security (CCS) on Wednesday (March 30) approved the procurement of 15 indigenously developed Light Combat Helicopters (LCH) at a cost of Rs 3,887 cr along with infrastructure sanctions worth Rs 377 cr. The decision was taken at a meeting chaired by the Prime Minister Narendra Modi.

When was the LCH project envisaged?

- The genesis of the LCH lies in the Kargil conflict of 1999 when the absence of an attack helicopter which could operate in ultra-high altitude areas was felt acutely by the Indian Army and the Indian Air Force (IAF).
- The intruding Pakistan Army troops had occupied various heights on the Indian side of the Line of Control but the existing Russian-made attack helicopters in the inventory of the Indian military did not have the operational ceiling which permitted their deployment at those heights.
- The IAF was forced to use the MI-17 helicopters in a modified role against those heights and suffered the loss of a helicopter when it was fired upon by the enemy.
- It was in 2006 that the Hindustan Aeronautics Limited (HAL) announced its intention to develop a LCH which could operate in the harsh desert conditions as well as the high altitude areas of Ladakh including the Siachen Glacier.

What are the major features of LCH?

- According to HAL, the LCH has “the maximum possible commonality with Advanced Light Helicopter (ALH)”.
- The attack helicopter has a pilot and co-pilot sitting in tandem position (one behind the other). The helicopter has several stealth features and has armour protection, night attack capability and crash worthy landing gear to give it better survivability.
- It is powered by two Shakti engines and has a maximum take off weight of 5,800 kg. With a maximum speed of 268 km per hour it has a range of 550 km and an operational ceiling of 6.5 kms.
- Armed with air-to-air and air-to-ground missiles, LCH also has a 20 mm gun and 70 mm rockets. With a full glass cockpit, the LCH has an Electronic Warfare suite and helmet mounted display for the flying crew.

What are the roles in which LCH can be deployed?

- The LCH is well suited for anti-tank role wherein it can fly low and fast to attack enemy armour columns and destroy them.
- As per HAL, it is also suitable for scout role wherein it can fly ahead of advancing columns of the Army and detect enemy presence.
- It is also suitable for air defence roles and destruction of enemy air defence assets. It can also be used in urban warfare missions and combat search and rescue operations.

Hydrogen-powered car

(Source: [Indian Express](#))

Context: Union Transport Minister Nitin Gadkari Wednesday travelled to the Parliament House in a hydrogen-based Fuel Cell Electric Vehicle (FCEV), in what could be interpreted as a strong indication of a shift in stance by the Centre that has so far backed conventional battery-powered electric vehicles, or BEVs.

How is this car different from other electric vehicles?

- Typically, there are four broad categorisations of electric vehicles—conventional hybrid electric vehicles (HEVs), plug-in hybrid vehicles (PHEVs), BEVs and FCEVs.
- FCEVs such as Toyota’s Mirai, Honda’s Clarity and Hyundai’s Nexo use hydrogen gas to power an on-board electric motor.
- FCEVs combine hydrogen and oxygen to produce electricity, which runs the motor. Since they’re powered entirely by electricity, FCEVs are considered EVs, but unlike BEVs, their range and refuelling processes are comparable to conventional cars and trucks.
- The major difference between a BEV and a hydrogen FCEV is that the latter enables a refuelling time of just five minutes, compared to 30-45 minutes charging for a BEV. Also, consumers get about five times better energy storage per unit volume and weight, which frees up a lot of space for other things, while allowing the rider to go farther.

What is India’s policy on hydrogen-powered vehicles?

- Prime Minister Narendra Modi, while speaking at the 3rd Re-inVest Conference in November 2020, had announced plans to launch a comprehensive National Hydrogen Energy Mission.
- In the Union Budget for 2021-22 last year, Finance Minister Nirmala Sitharaman proposed launching a Hydrogen Energy Mission in 2021-22 for generating hydrogen from green power sources.

- Last month, the Ministry of New and Renewable Energy announced a 13-point Green Hydrogen Policy detailing the various incentives and ways to manufacture green hydrogen.

Dip in Chilika lake's dolphin population

(Source: [The Hindu](#))

Context: *The dolphin population along Odisha's coast and in its waterbodies has increased but the number of Irrawaddy dolphins in Chilika lake has fallen. Months after undertaking a census in different waterbodies and off the coast of Odisha, the Principal Chief Conservator Forest (Wildlife) has provided data, recorded across the State's Wildlife Divisions, on the number of dolphins, which have overall gone up from 544 in 2021 to 726 in 2022.*

High sighting

- The increase in the State's dolphin population is largely due to high sighting in the Mangrove Wildlife Division of the Rajnagar jurisdiction, where 540 dolphins were enumerated in 2022 compared with 342 in 2021.
- In Rajnagar, the number of bottlenose dolphins rose from 22 to 135 and humpback dolphins from 281 to 332 in one year.
- A total of six species of dolphins — Irrawaddy, bottlenose, humpback, striped, finless and spinner dolphins — have been recorded.
- The lake, which is a major tourist attraction known for its Irrawaddy dolphins, saw the numbers of its flagship aquatic animal drop sharply from 162 in 2021 to 151 this year.
- There has also been a fall in the number of bottlenose dolphins at Chilika, from 26 in 2021 to 16 in 2022.
- In the remaining four Wildlife Divisions — Puri, Berhampur, Bhadrak and Balasore — dolphin sighting was negligible. The State has a total of 208 Irrawaddy dolphins.
- The census for dolphins and other cetacean species included almost the entire coast of Odisha, where estimation was been carried out within a width of one kilometre from the sea beach using the line transect census method at a distance of 500 metres from the beach.
- Subsequently, recording of dolphins sighted on either side of the line transect was completed. In all, 48 census units were established all along the coastline.

Surat gets India's first steel slag road

(Source: [Indian Express](#))

Context: *Surat has become the first city in the country to get a processed steel slag (industrial waste) road built as part of a joint-venture project by the Council of Scientific and Industrial Research (CSIR), Central Road Research Institute (CRRI), Union Ministry of Steel, government think-tank NITI Ayog, and ArcelorMittal-Nippon Steel (AM/NS), at Hazira.*

What is the project all about?

- The six-lane public road is a kilometre-long stretch in Hazira industries, which also houses the AM/NS plant.
- The construction began around a year ago by converting mounds of steel waste into steel slag aggregate.

- The sixth and final lane of the road, with a three-lane to-and-fro carriageway on either side, was completed in early March.
- The road is now being used by heavy-duty vehicles of multinationals located in the industrial estate on the outskirts of Surat.
- According to CRRI principal scientist Satish Pandey, the construction cost of the processed steel slag road is 30 per cent cheaper than roads built from natural aggregates.
- The thickness of the road is also 30 per cent lesser than normal ones, while the durability is much longer due to the utilisation of steel slag

The process

- The slag is generated from a steel furnace burning at around 1,500-1,600 degree centigrade in the form of molten flux material as an impurity.
- The molten material is poured into the slag pits for cooling as per the customized procedure and further processed to develop stable steel slag aggregates, with “better material properties in place of the natural aggregate commonly used in road constructions”,.
- According to the Indian Road Congress guidelines for construction of a heavy traffic road that is capable of taking the load of 1,000 to 1,200 trucks per day, around 600 to 700 mm thickness of road layers are required on the foundation with 8 per cent CBR (California Bearing Ratio).

Are these roads cost-effective and good for the environment?

- Surat Municipal Corporation (SMC) Road Development department officials say the utilisation of processed steel slag in road construction paves the way for sustainable use of waste and reduces the reliance on perishable natural aggregates.
- This process is also expected to reduce GHG emissions and carbon footprint in road construction activity and is in line with India’s commitment to the United Nations Sustainable Development Goal No. 9 for building resilient infrastructure through inclusive and sustainable industrialization and green technologies.
- Executive Engineer at SMC’s Road Development Department, B R Bhatt, said: “The approximate construction cost per square meter of a processed steel slag road is Rs 1,150 as against Rs 1,300 for a bitumen road and Rs 2,700 for a cement or a concrete one.
- The lifespan of a cement or concrete road is over 30 years while that of bitumen and steel slag road is around 15 years.”

Do high temperatures affect these roads?

- According to Bhatt, the upper surface of the road will be around “1-2 degree higher in mid-afternoon when compared to regular ones”. Thermocouple has been used to maintain the temperature of the outer surface of the road.
- However, the carbon footprint for such roads is much lower as the ones built using natural aggregates are mined and processed.
- Besides, after mining and crushing, the material also needs to be transported from one place to another. When it comes to steel slag road, there is no blasting, drilling or crushing as the material is waste coming out of a steel industry which is processed and converted to the form of aggregate material used for construction.
- Coming to the impact of such roads on the vehicles, experts said that the effect on tyres would be negligible. The steel slag melts at over 200 degree Celsius, while the temperature during peak summer in India is not above 45 degree Celsius. Moreover, the upper layer is made up of bitumen layers.

Landfill fires

(Source: [Indian Express](#))

Context: *A fire broke out at Ghazipur landfill in New Delhi on March 28 and could be put out nearly 48 hours later, while plumes of smoke arose from the mounds of garbage. Environment Minister Gopal Rai said on Wednesday that the Delhi Pollution Control Committee (DPCC) had been directed to impose a fine of Rs50 lakh on the East Delhi Municipal Corporation (EDMC), which manages the landfill.*

Why do landfills burn repeatedly?

- The Ghazipur dumpsite, which covers around 70 acres in East Delhi, is not a scientifically planned sanitary landfill.
- The Solid Waste Management Rules issued by the MoEFCC in 2016 state that only non-recyclable, non-biodegradable and non-combustible waste should go to a sanitary landfill.
- The biodegradable or food waste decomposes over time. The anaerobic decomposition (breakdown of organic waste in the absence of oxygen) of organic waste generates methane gas and heat.
- Methane is present in air only in traces. But at dumpsites, methane can range between 3.5% and 13%. If there is anything combustible at the dumpsite, it can catch fire quickly. Natural fires are very common at dumpsites.
- At sanitary landfills, waste should be compacted and a thick soil cover should be placed over it. "Soil acts as a fire suppressant and restricts the passage of oxygen that is required for combustion.

Why is it difficult to douse fires that break out at landfills?

- Scientifically designed landfills are expected to have leachate collection systems and gas collection systems, while the waste is to be compacted properly and pathways are to be provided through the dumpsite. At uncontrolled landfills, access can be difficult.
- A lot of methane is already trapped at the dumpsite. Using water to douse fires at these sites means that it will generate leachate and heat.
- The best fire suppressant is soil or construction debris. Wind speed can also hinder attempts to douse it.

Genome editing technology and GM technology

(Source: [Indian Express](#))

Context: *The central government paved the way for easy introduction of genome edited crops. The government has clearly distinguished such crops from genetically modified crops and has prescribed relatively easier norms for their introduction.*

What is genome editing?

- A decade ago, scientists in Germany and the US discovered a technique which allowed them to 'cut' DNA strands and edit genes.
- For agriculture scientists this process allowed them to bring about desired changes in the genome by using site directed nuclease (SDN) or sequence specific nuclease (SSN). Nuclease is an enzyme which cleaves through nucleic acid — the building block of genetic material.
- Advanced research has allowed scientists to develop the highly effective clustered regularly interspaced palindromic repeat (CRISPR) -associated proteins based systems. This system allows for targeted intervention at the genome sequence.
- This tool has opened up various possibilities in plant breeding. Using this tool, agricultural scientists can now edit genome to insert specific traits in the gene sequence. Depending on the nature of the edit that is carried out, the process is divided into three categories — SDN 1, SDN 2 and SDN 3.

- SDN1 introduces changes in the host genome's DNA through small insertions/deletions without introduction of foreign genetic material. In the case of SDN 2, the edit involves using a small DNA template to generate specific changes.
- Both these processes do not involve alien genetic material and the end result is indistinguishable from conventionally bred crop varieties.
- On the other hand, SDN3 process involves larger DNA elements or full length genes of foreign origin which makes it similar to Genetically modified organisms (GMO) development.

How is gene editing different from GMO development?

- Genetically modified organisms (GMO) involves modification of the genetic material of the host by introduction of a foreign genetic material.
- In the case of agriculture, soil bacteria is the best mining source for such genes which are then inserted into the host genome using genetic engineering.
- For example, in case of cotton, introduction of genes cry1Ac and cry2Ab mined from the soil bacterium *Bacillus Thuringiensis* (BT) allow the native cotton plant to generate endotoxins to fight pink bollworm naturally.
- BT Cotton uses this advantage to help farmers naturally fight pink bollworm which is the most common pest for cotton farmers.
- The basic difference between genome editing and genetic engineering is that while the former does not involve the introduction of foreign genetic material, the latter does.
- In the case of agriculture, both the techniques aim to generate variants which are better yielding and more resistant to biotic and abiotic stress.
- Before the advent of genetic engineering, such variety improvement was done through selective breeding which involved carefully crossing plants with specific traits to produce the desired trait in the offspring.
- Genetic engineering has not only made this work more accurate but has also allowed scientists to have greater control on trait development.

What are the regulatory issues which have prevented wider adoption of this technique?

- Across the world, GM crop has been a topic of debate, with many environmentalists opposing it on the grounds of bio safety and incomplete data.
- In India, the introduction of GM crops is a laborious process which involves multiple levels of checks.
- The Genetic Engineering Appraisal Committee (GEAC), a high power committee under the Ministry of Environment, Forest and Climate Change, is the regulator for introduction of any GM material and in case of agriculture multiple field trials, data about biosafety and other information is necessary for getting the nod before commercial release of any GM crop.
- Till date the only crop which has crossed the regulatory red tape is Bt cotton.
- Scientists both in India and across the world have been quick to draw the line between GM crops and genome edited crops.
- The latter, they have pointed out, has no foreign genetic material in them which makes them indistinguishable from traditional hybrids.
- Globally, European Union countries have bracketed genome edited crops with GM crops. Countries like Argentina, Israel, US, Canada, etc have liberal regulations for genome edited crops.

Raja Ravi Varma

(Source: [Indian Express](#))



Context: Often referred to as the father of modern Indian art, Raja Ravi Varma is widely known for his realistic portrayal of Indian gods and goddesses. While he majorly painted for the royalty, he is also credited for taking art to the masses with his prints and oleographs. On April 6, one of his significant paintings, *Draupadi Vastraharan*, will be going under the hammer for the first time. Estimated to fetch between Rs 15 and Rs 20 crore, the canvas depicts the disrobing of Draupadi in a scene from the Mahabharata. We take a look at what helped shape Varma's art and how he finally took it to the masses.

Formative years and influences

- Raja Ravi Varma was born in April 1848 in Kilimanoor, Kerala, to a family which was very close to the royals of Travancore.
- At a young age, he would draw animals and everyday scenes on the walls in indigenous colours made from natural materials such as leaves, flowers and soil.
- His uncle, Raja Raja Varma, noticed this and encouraged his talent. Patronised by Ayilyam Thirunal, the then ruler of Travancore, he learnt watercolour painting from the royal painter Ramaswamy Naidu, and later trained in oil painting from Dutch artist Theodore Jensen.

How he became an artist of the royals

- Varma became a much sought-after artist for the aristocrats and was commissioned several portraits in late 19th century.
- Arguably, at one point, he became so popular that the Kilimanoor Palace in Kerala opened a post office due to the sheer number of painting requests that would come in for him. He travelled across India extensively, for work and inspiration.
- Following a portrait of Maharaja Sayajirao of Baroda, he was commissioned 14 Puranic paintings for the Durbar Hall of the new Lakshmi Vilas Palace at Baroda.
- Depicting Indian culture, Varma borrowed from episodes of Mahabharata and Ramayana for the same. He also received patronage from numerous other rulers, including the Maharaja of Mysore and Maharaja of Udaipur.
- As his popularity soared, the artist won an award for an exhibition of his paintings at Vienna in 1873. He was also awarded three gold medals at the World's Columbian Exposition in Chicago in 1893.

Who were his protagonists?

- Believed to have made more than 7,000 paintings before his death at the age of 58 in 1906, Varma combined European realism with Indian sensibilities.
- While he travelled to find his subjects, painting the Indian royals and aristocrats, his inspiration came from varied sources — from Indian literature to dance drama.
- Much of his celebrated art also borrows heavily from Indian mythology. In fact, he is often credited with defining the images of Indian gods and goddesses through his relatable and more realistic portrayals often painted with humans as models.
- The depictions include Lakshmi as the goddess of wealth, Saraswati as the goddess of knowledge and wisdom, and Lord Vishnu with his consorts, Maya and Lakshmi.

How he took Indian art to the masses

- Raja Ravi Varma aspired to take his art to the masses and the intent led him to open a Lithographic Press in Bombay in 1894.
- The idea, reportedly, came from Sir T Madhava Rao, former Dewan of Travancore and later Baroda, in a letter where he pointed out to Varma that since it was impossible for him to meet the large demand for his work, it would be ideal for him to send some of his select works to Europe and have them produced as oleographs.
- Varma, instead, chose to establish a printing press of his own. The first picture printed at Varma's press was reportedly *The Birth of Shakuntala*, followed by numerous mythological figures and saints such as Adi Shankaracharya.

- In 1901, Ravi Varma sold the printing press to a German lithographer, Fritz Schleicher, who continued to manufacture the lithographs. The popularity of the prints, in fact, continued till modern times, with Varma's style acting as inspiration for artists who illustrated the popular comic book series Amar Chitra Katha.

Tripura's Darlong community

(Source: [Indian Express](#))

Context: Darlongs – a small community of around 11,000 people in Tripura – was officially included in the list of Scheduled Tribes after the Lok Sabha passed the Constitution (Scheduled Tribes) Order (Amendment) Bill, 2022.

Tribes of Tripura

- Tripura, the tiny Northeast state of 37 lakh people houses 19 tribal communities. These include Tripuri or Debbarma, Reangs or Brus, Jamatia, Noatia, Uchoi, Chakma, Mog, Lushai, Kuki, Munda, Kour, Oram, Santhal, Bhil, Bhutia, Chaimar or Sermai, Garo, Khasi, Lepcha and Halam.
- Many of these communities are further divided into sub-tribes. For example, Kukis have nearly 17-18 sub-tribes within the community. It is an umbrella tribal community including many smaller clans like Khasi, Lushai, Hmars and other generic clans.
- In course of time, Lushai, Hmar, Garo etc. came out of Kuki as separate communities. Halam community also has several sub-tribes such as Rangkhawl, Ranglong, Dab, Chaimar or Sermai, Bong, Korbong, Harbong, Bongcher etc.

Who are Darlongs?

- Darlong is a tribal community of 11,000 people. Despite its small population, the community has a high prevalence of education, cultural activities and members of the community are serving in different high positions in the local administration.
- Darlongs, despite being Scheduled Tribes, were never given ST certificates. Since they were considered a generic tribe under the Kuki community, they were handed their tribal certificates as members of 'Kuki' community.
- The subsequent identity crisis among them, especially Darlong youths, who were equipped with modern education, culminated in the demand for a separate statutory identity of their own in 1995.
- The group is a small tribal clan but has produced a high number of educated people proportionate to its population in the state. People from the Darlong community, like many other tribal communities, are now serving in high positions in the state administration, academia, and public services.
- Tribal musicologist and Rosem (tribal instrument) maestro Thanga Darlong was conferred the prestigious Padma Shri award a few years back for his contribution to culture.

Look out notice

Context: Delhi High Court sought the Enforcement Directorate's (ED's) response on journalist Rana Ayyub's challenge to its action of restraining her from leaving the country. Ayyub was stopped in Mumbai

based on a look out circular (LOC) issued by the ED, which is investigating her in a case of alleged money laundering.

Look out notice: What is it, when is it issued?

- An LOC is issued to make sure that an individual who is absconding or wanted by law enforcement agencies is not able to leave the country.
- It is mostly used at immigration checkpoints at international airports and seaports by the immigration branch.
- In certain cases, the police can approach a court asking for the restriction of a person's movement outside the country, when that person is a suspect and there is an apprehension that they may not join the investigation at a later stage.
- The subject of an LOC can challenge the circular and get relief from a court.

Who can issue an LOC?

- An LOC can be initiated by a large number of authorised officers, including an officer not below the rank of deputy secretary, an officer not below the rank of joint secretary in the state government, a district magistrate or superintendent of police, designated officers of various law enforcing and security agencies, a designated officer of Interpol, an officer not below the rank of additional director in the Serious Fraud Investigation Office, and the Ministry of Corporate Affairs.
- In 2018, the government also empowered the heads of public sector banks to directly request the authorities to issue an LOC against wilful defaulters to prevent them from leaving the country.
- So now, an officer not below the rank of chairman/managing director/chief executive of any public sector bank can make a request.
- An LOC can be modified/deleted/withdrawn by the Bureau of Immigration only on the specific request of the authorised originator on whose request the LOC was issued.

Does an LOC lead to arrest?

- Not necessarily. LOCs can be of several types. They can seek to merely stop a person against whom the circular has been issued from travelling outside the country, to prevent a person from entering the country, or inform the concerned investigation agencies.
- The proforma of the LOC also contains a request to detain the individual at the local police/investigation agency, which generally leads to arrest.

Gujarat's Bill to regulate stray cattle in urban areas

(Source: [Indian Express](#))

Context: *The Gujarat government's Bill seeking to regulate stray cattle in urban areas of the state was passed by majority in the Assembly after a six-hour long debate. In its 'statement of objects and reasons,' the Gujarat Cattle Control (Keeping and Movement) in Urban Areas Bill, 2022 especially mentions the threat stray cattle pose to those riding two-wheelers. The new Bill, when it becomes a law, will be applicable in Gujarat's eight major cities – Ahmedabad, Vadodara, Surat, Rajkot, Gandhinagar, Jamnagar, Bhavnagar and Junagadh – which have municipal corporations and 162 towns which have municipalities and are notified as urban areas.*

Existing laws

- The Gujarat Provincial Municipal Corporation Act 1948 and The Gujarat Municipalities Act, 1963 provide for control of animal nuisance in urban areas.
- Animal nuisance control is treated as a civic service under this act.
- With more resources at their disposal, the municipal corporations have animal nuisance control departments (ANCDs) which impound stray cattle, keep them in cattle pounds and if not claimed by owners within a week, seize them and send them to panjarapoles (charitable organisations working for animal welfare).

Provisions in proposed law

- The proposed law makes it mandatory to obtain a licence from a local authority (LA, a municipal corporation or municipality) to keep cattle which include buffaloes, cows, their calves and heifers, bulls, bullocks, goats, sheep and donkeys.
- For obtaining such a licence, a cattle-owner will have to submit details of a cattle-shed where he proposes to keep his cattle, get each of his cattle-head tagged and submit its details to LA. Any cattle outside the licensed cattle-sheds will be impounded.
- Also, the proposed law empowers the LAs and the state government to notify an entire urban area or part thereof as prohibited zone for cattle. The government can also extend jurisdiction of the proposed new act to an area contiguous to a notified urban area.
- It also restricts sale of fodder to notified areas only and provides for penalty to fodder-sellers for violations.
- The penalty for selling fodder was the only part the government scaled down before passing the Bill.
- So, from Rs 10,000 to Rs 50,000 the penalty has been reduced to Rs 5,000 to Rs 25,000. The LAs will accept unproductive or undesirable cattle from maldharis (cattle-rearers) on payment of a one-time fee and keep them in permanent cattle-sheds to be set up with the help of government, private players and civil society.
- However, cattle-herders will be required to pay LAs for disposal of carcasses in case cattle die in their custody. Managers or owners of permanent cattle-sheds will also be fined if cattle break loose from their facilities.

The Current Account Deficit

(Source: [Indian Express](#))

Context: India's Current Account Deficit (CAD) increased to \$23 billion (2.7 per cent of GDP) in the third quarter (Q3) of 2021-22 from \$9.9 billion (1.3 per cent of GDP) in Q2 of 2021-22 and \$2.2 billion (0.3 per cent of GDP) in Q3 of 2020-21. The widening of CAD in Q3 of 2021-22 was mainly on account of higher trade deficit, according to the Reserve Bank of India. Net services receipts increased, both sequentially and on a year-on-year (y-o-y) basis, on the back of robust performance of net exports of computer and business services, the RBI said.

What is the CAD?

- Every day, Indians and Indian entities — such as firms and governments — import foreign goods and services, export domestic goods and services, receive investments from abroad, and make investments in other countries.
- Each of these transactions involves either a demand for foreign currency — for example, you need dollars to import something from the US or to invest in one of the US stock exchanges — or a demand for Indian currency (by the same logic).
- The interplay of these transactions decides the exchange rate of the rupee vis-a-vis the foreign currency (say the dollar).

Recording of transactions

- That notebook, or slate or ledger, is called the Balance of Payment, or BoP. The BoP has two parts.
- One is the capital account. This includes all types of trading in capital. In other words, all investments inside and outside the country are recorded here — for example, if an Indian firm invests money in the US to build a new company there, or if an Indian buys stocks on an American exchange.
- The second part of the BoP is called the Current Account. Here, all the trade in goods and services is noted down — for example, if an Indian imports an American gadget or software made by an American company or if an American entity imports Indian steel or engages an Indian IT company to create a software.
- The Current Account, then, has two specific sub-parts:
 - 1) Import and Export of goods — this is the “trade account”.
 - 2) Import and export of services — this is called the “invisibles account”.

Current Account Deficit

- It is possible that a country — say India — imports more goods (everything from cars to phones to machinery to food grains etc.) than it exports. In such a case, it would have a “deficit” on its trade account. In other words, more money is going out of the country than coming in via the trade of physical goods.
- However, India could be enjoying a surplus on the invisibles account. This may happen because its software industry is very capable, efficient and competitive, and exports lots of software solutions — or because Indians working in the US send lots of money back home to their families.
- The net effect of this surplus (or deficit) on the invisibles account and the deficit (or surplus) on the trade account is called the current account balance.
- If, as is more often the case with India, there is a huge trade deficit and a smaller surplus on the invisibles, then what we have is an overall deficit on the current account — or Current Account Deficit.
- In essence, having a CAD or a deficit on the current account implies that, in monetary terms, India imports more goods and services than it exports. This, in turn, implies that the demand for the foreign currency (say the US dollar) is more than the demand for the Indian rupee.
- That, in turn, implies that the rupee will depreciate. Whether or not it eventually does depreciate, however, depends on what is happening to the Capital Account of the BoP.

Centre introduces Antarctica Bill

(Source: [The Hindu](http://www.thehindu.com))

Context: *The government introduced the ‘Antarctica Bill’ in the Lok Sabha that envisages regulating visits and activities to Antarctica as well potential disputes that may arise among those present on the continent. The Bill also prescribes penal provisions for certain serious violations.*

Details:

- The text of the Bill, which was introduced by Science Minister, Jitendra Singh, on Friday says that it seeks to “... prohibit Indian expedition to Antarctica or carrying of certain activities in Antarctica without a permit or the written authorisation of another party to the protocol...provide for inspection in India by an officer designated by the Central government as an Inspector and to constitute an inspection team to carry out inspections in Antarctica.”
- India had been a signatory to the Antarctica Treaty since 1983 and that encumbered India to specify a set of laws governing portions of the continent where it had its research bases.

- India is also signatory to treaties such as the Convention on the Conservation of Antarctic Marine Living Resources and the Commission for Conservation of Antarctic Marine Living Resources, both of which enjoin India to help preserve the pristine nature of the continent.





INTERNATIONAL

The complete human genome

(Source: [Indian Express](#))

Context: *Nearly two decades ago, when scientists published the map of the human genome for the first time, it was hailed as a breakthrough. That was incomplete, however: about 8% of the human DNA was left unsequenced. Now, in a series of papers published in Science, a large team has accounted for that 8%, completing the picture of the human genome for the first time.*

Why it matters

- A complete human genome makes it easier to study genetic variation between individuals or between populations.
- A genome refers to all of the genetic material in an organism, and the human genome is mostly the same in all people, but a very small part of the DNA does vary between one individual and another.
- By constructing a complete human genome, scientists can use it for reference while studying the genome of various individuals, which would help them understand which variations, if any, might be responsible for disease.

What was missing

- The genetic sequence made available in 2003 from the Human Genome Project, an international collaboration between 1990 and 2003, contained information from a region of the human genome known as the euchromatin. Here, the chromosome is rich in genes, and the DNA encodes for protein.
- The 8% that was left out was in the area called heterochromatin. This is a smaller portion of the genome, and does not produce protein.
- There were at least two key reasons why heterochromatin was given lower priority. This part of the genome was thought to be “junk DNA”, because it had no clear function. Besides, the euchromatin contained more genes that were simpler to sequence with the tools available at the time.
- Now, the fully sequenced genome is the result of the efforts of a global collaboration called the Telomere-2-Telomere (T2T) project. The invention of new methods of DNA sequencing and computational analysis helped complete the reading of the remaining 8% of the genome.

What's in the 8%

- The new reference genome, called T2T-CHM13, includes highly repetitive DNA sequences found in and around the telomeres (structures at the ends of chromosomes) and the centromeres (at the middle section of each chromosome). The new sequence also reveals long stretches of DNA that are duplicated in the genome and are known to play important roles in evolution and disease.
- The fact that the sequences are repetitive is enlightening, scientists said. The findings have revealed a large number of genetic variations, and these variations appear in large part within these repeated sequences.
- “A significant amount of human genetic material turns out to be long, repetitive sections that occur over and over. Although every human has some repeats, not everyone has the same number of them. And the difference in the number of repeats is where most of human genetic variation is found,” the University of Connecticut said in a press release.
- Many of the newly revealed regions have important functions in the genome even if they do not include active genes.

What next

- The T2T consortium used the now-complete genome sequence as a reference to discover more than 2 million additional variants in the human genome. These studies provide more accurate information about the genomic variants within 622 medically relevant genes, the US National Institutes of Health has announced.
- The complete sequence will be valuable for studies that aim to establish comprehensive views of human genomic variation. Many research groups have already started using a pre-release version of the complete human genome sequence for their research, the NIH said.
- The new T2T reference genome will complement the standard human reference genome, known as Genome Reference Consortium build 38 (GRCh38), which originated from the Human Genome Project and has been updated since.

Great Barrier Reef

(Source: [Indian Express](#))

Context: *The Great Barrier Reef is suffering its fourth mass bleaching event since 2016.*

Details:

- Descending beneath the surface at John Brewer Reef near Townsville, our eyes were immediately drawn to the iridescent whites, blues and pinks of stressed corals among the deeper browns, reds and greens of healthier colonies.
- This is the first time the reef has bleached under the cooling conditions of the natural La Nina weather pattern, which shows just how strong the long-term warming trend of climate change is. Despite the cooling conditions, 2021 was one of the hottest years on record.
- When coral bleaches, it is not dead, yet. Coral reefs that suffer widespread bleaching can still recover if conditions improve, but it's estimated to take up to 12 years. That is, if there's no new disturbance in the meantime, such as a cyclone or another bleaching event.
- So what conditions are needed for coral recovery? And under what conditions will coral die?

What it takes for coral to die

- Whether a coral can survive bleaching depends on how long conditions remain stressful, and to what level. What's more, some species are more sensitive than others, such as branching acropora corals, especially if they've bleached previously.
- If water remains too warm for too long, corals will eventually die. But if the water temperature drops and the ultraviolet light becomes less intense, then the coral may recover and survive.
- While the average sea temperatures in the reef currently remain above average, they've shown signs of cooling to a more amenable average for coral survival.
- Sea temperatures in Cleveland Bay, near Townsville, were above 31° in early March, but thankfully have now reduced to below 29°. Similarly in the Whitsundays, Hardy Reef experienced temperatures as high as 30° but has receded to nearer 26° in the past few weeks.
- If coral does survive a bleaching event, it is still impacted physiologically, as bleaching can slow growth rates and reduce reproductive capacity. Surviving colonies also become more susceptible to other challenges, such as disease.

Signs of stress

- Survival also depends on each individual coral's own resilience: its ability to cope with higher temperatures and increased ultraviolet stress.
- For example, fast growing branching corals are the most susceptible to bleaching and are generally the first to die. Long-lived massive corals, such as porites, may be less susceptible to bleaching, show minimal effects of bleaching and recover quicker.
- Corals can use fluorescent pigments to shield themselves from excessive ultraviolet radiation, a bit like sunscreen that lets coral manage, filter and attempt to regulate the incoming light.
- To the casual observer, fluorescent corals look bright purple, pink, blue and yellow. For reef scientists, fluorescence is an obvious signal that corals are stressed and struggling to regulate their internal balance. As we've seen, white and fluorescent corals are currently a common sight on many reefs.
- Most coral species have fluorescent pigments in their tissue. Some are always visible to humans, especially branching corals with bright blue or pink hues on the their branch tips.
- Others are never visible, and some are visible only during times of heat stress when coral colonies boost these fluorescent pigments to fight the increasing ultraviolet intensity in warmer seas.

Coral can't adapt fast enough

- Scientists measure heat stress on corals using a metric called 'degree heating weeks'.
- One degree heating week is when the temperature at a given location is more than 1 degree Celsius over the historical maximum temperature. If the water is 2 degree Celsius above the historical maximum for one week, this would be considered two degree heating weeks.
- Generally speaking, at four degree heating weeks, scientists expect to see signs of stress and coral bleaching. It usually takes eight degree heating weeks for coral to die.
- According to Bureau of Meteorology data, many parts of the Great Barrier Reef, such as off Cairns and Port Douglas, currently remain in the window of between four and eight degree heating weeks. But some areas, near Townsville and the Whitsundays, are experiencing severe bleaching stress beyond eight degree heating weeks.
- While we hope many coral reefs will recover from this round of bleaching, the long term implications cannot be understated
- When corals bleach, they eject their zooxanthellae single-celled algae that gives coral colour and energy. Some corals may regain their zooxanthellae after the bleaching event is over, but this usually takes between three and six months.
- To make matters worse, full reef recovery requires no new bleaching events or other disturbances in the years that follow. Given the reef has bleached six times since the late 1990s, alongside global climate trajectories, this would appear an unlikely scenario.
- While some corals may learn to cope with these new conditions by potentially acquiring more heat-tolerant zooxanthellae, the reality is that change is happening too fast for coral to adapt via evolution.
- The severe bleaching in previous years also means future events may appear less severe. But this is simply because most of the heat sensitive corals have already died, potentially resulting in a lower probability of widespread severe bleaching.

The Bamiyan Buddhas

(Source: [Indian Express](#))

Context: *The Taliban regime in Afghanistan has said it **would protect the ancient Buddha statues in Mes Aynak**, also the site of a copper mine where the Taliban are hoping for Chinese investment. The Taliban's*

position is in marked contrast to the time they ruled Afghanistan earlier, when, in the face of global outrage, they brought down the centuries-old Buddha statues in Bamiyan using artillery, explosives, and rockets.

The ancient Bamiyan Buddhas

- The Bamiyan valley, in the Hindu Kush mountains and along the river Bamiyan, was a key node of the early Silk Routes, emerging as a hub of both commercial and cultural exchange.
- According to UNESCO, the “rise of Bamiyan was closely connected with spread of Buddhism across Central Asia, and that in turn was linked to the political and economic currents of that time. Early in the first century AD, a semi-nomadic tribe called the Kushans swept out of Bactria... The Kushans made themselves the unavoidable middlemen between China, India and Rome, and prospered on the revenues of the Silk Road. In so doing, they fostered a syncretic culture, in which tribal traditions from Central Asia fused with artistic conventions derived from the Hellenized Mediterranean and with the ideologies coming from Buddhist India, as reflected in the remarkable cultural legacy to be found in Bamiyan.”
- The Bamiyan Buddha statues, hewn from sandstone cliffs, are said to have dated back to the 5th century AD, and were once the tallest standing Buddhas in the world. In their Roman draperies and with two different mudras, the statues were great examples of a confluence of Gupta, Sassanian and Hellenistic artistic styles.
- **Called Salsal and Shamama by the locals**, they rose to heights of 55 and 38 metres respectively. Salsal means “light shines through the universe”, while Shamama is “Queen Mother”.

The Bucharest Nine

(Source: [Indian Express](#))

Context: *The “Bucharest Nine” is a group of nine NATO countries in Eastern Europe that became part of the US-led military alliance after the end of the Cold War. In the article, the envoys rejected the Russian claim (which has been amplified by the Chinese) about the eastward “expansion” of NATO, and “underlined that NATO is not an organisation that “expanded” to the east”, rather, “It was we, the independent European states, that decided on our own to go west.”*

Organisation

- The Bucharest Nine or Bucharest Format, often abbreviated as the B9, was founded on November 4, 2015, and takes its name from Bucharest, the capital of Romania.
- The group was created on the initiative of Klaus Iohannis, who has been President of Romania since 2014, and Andrzej Duda, who became President of Poland in August 2015, at the High-Level Meeting of the States from Central and Eastern Europe in Bucharest.
- According to a 2018 release from the office of the Romanian President, “the Bucharest Format (B9) offers a platform for deepening the dialogue and consultation among the participant allied states, in order to articulate their specific contribution to the ongoing processes across the North-Atlantic Alliance, in total compliance with the principles of solidarity and indivisibility of the security of the NATO Member States.”

Composition

- The B9 are, apart from Romania and Poland, Hungary, Bulgaria, the Czech Republic, Slovakia, and the three Baltic republics of Estonia, Latvia, and Lithuania. All nine countries were once closely associated with the now dissolved Soviet Union, but later chose the path of democracy.
- Romania, Poland, Hungary, and Bulgaria are former signatories of the now dissolved Warsaw Pact military alliance led by the Soviet Union. (The other Warsaw Pact countries were the erstwhile

Czechoslovakia and East Germany, and Albania.) Estonia, Latvia, and Lithuania were part of the former Union of Soviet Socialist Republics (USSR).

- All members of the B9 are part of the European Union (EU) and North Atlantic Treaty Organisation (NATO).

The phenomenon of coral bleaching

(Source: [The Hindu](#))

Context: *The management authority of the world's largest coral reef system, Australia's Great Barrier Reef, confirmed on March 25 that the reef is experiencing a mass coral bleaching event. This is the sixth time that the coral reef system is being hit by a widespread and damaging bleaching event and the fourth time in six years that such an event has occurred. The bleaching event coincides with a 10-day UNESCO (United Nations Educational, Scientific and Cultural Organization) scientific mission currently underway in Australia.*

What are coral reefs?

- Corals are marine invertebrates or animals not possessing a spine. Each coral is called a polyp and thousands of such polyps live together to form a colony, which grows when polyps multiply to make copies of themselves.
- Corals are of two types — hard coral and soft coral. Hard corals, also called hermatypic or 'reef building' corals extract calcium carbonate (also found in limestone) from the seawater to build hard, white coral exoskeletons.
- Soft coral polyps, however, borrow their appearance from plants, attach themselves to such skeletons and older skeletons built by their ancestors. Soft corals also add their own skeletons to the hard structure over the years and these growing multiplying structures gradually form coral reefs. They are the largest living structures on the planet.
- Corals share a symbiotic relationship with single-celled algae called zooxanthellae. The algae provides the coral with food and nutrients, which they make through photosynthesis, using the sun's light. In turn, the corals give the algae a home and key nutrients. The zooxanthellae also give corals their bright colour.
- Australia's Great Barrier Reef is the world's largest reef system stretching across 2,300 km. It hosts 400 different types of coral, gives shelter to 1,500 species of fish and 4,000 types of mollusc.

What is coral bleaching?

- Bleaching happens when corals experience stress in their environment due to changes in temperature, pollution or high levels of ocean acidity.
- Under stressed conditions, the zooxanthellae or food-producing algae living inside coral polyps start producing reactive oxygen species, which are not beneficial to the corals.
- So, the corals expel the colour-giving zooxanthellae from their polyps, which exposes their pale white exoskeleton, giving the corals a bleached appearance. This also ends the symbiotic relationship that helps the corals to survive and grow.
- Bleached corals can survive depending on the levels of bleaching and the recovery of sea temperatures to normal levels. If heat-pollutions subside in time, over a few weeks, the zooxanthellae can come back to the corals and restart the partnership but severe bleaching and prolonged stress in the external environment can lead to coral death.
- Over the last couple of decades, climate change and increased global warming owing to rising carbon emissions and other greenhouse gases have made seas warmer than usual. Under all positive outlooks



and projections in terms of cutting greenhouse gases, sea temperatures are predicted to increase by 1.5°C to 2°C by the time the century nears its end.

- The first mass bleaching event had occurred in 1998 when the El Niño weather pattern caused sea surfaces in the Pacific Ocean to heat up; this event caused 8% of the world's coral to die. The second event took place in 2002.
- In the past decade, however, mass bleaching occurrences have become more closely spaced in time, with the longest and most damaging bleaching event taking place from 2014 to 2017.
- This started with reefs in Guam in the Western Pacific region getting affected, to then affecting the North, South-Pacific, and the Indian Ocean.
- Global temperature in 2017, was the third-highest to ever be recorded. In the 2014-17 event, more than three times as many reefs were exposed to bleaching-level heat stress as compared to 1998.
- A 2021 study by the Global Coral Reef Monitoring Network (GCRMN), which is supported by the United Nations, showed that 14% of the world's coral on reefs had been lost between 2009 and 2018, with most of the loss attributed to coral bleaching.

Why does it matter?

- Coral reefs support over 25% of marine biodiversity, including fish, turtles and lobsters; even as they only take up 1% of the seafloor.
- The marine life supported by reefs further fuels global fishing industries. Even giant clams and whales depend on the reefs to live.
- Besides, coral reef systems generate \$2.7 trillion in annual economic value through goods and service trade and tourism. In Australia, the Barrier Reef, in pre-COVID times, generated \$4.6 billion annually through tourism and employed over 60,000 people including divers and guides.
- Aside from adding economic value and being a support system for aquatic life, coral reefs also provide protection from storm waves.
- Dead reefs can revive over time if there are enough fish species that can graze off the weeds that settle on dead corals, but it takes almost a decade for the reef to start setting up again. The reefs which were severely damaged in 1998 did recover over time.

Microplastics

(Source: [The Hindu](#))

Context: *Microplastics are, as the name suggests, tiny particles of plastics found in various places — the oceans, the environment, and now in human blood. A study by researchers from The Netherlands (Heather A. Leslie et al, Environment International, Published online 24 March) has examined blood samples of 22 persons, all anonymous donors and healthy adults, and found plastic particles in 17 of them. A report on this work, published in The Guardian conveys that about half of these were PET (polyethylene terephthalate) plastics, which is used to make food grade bottles. The size of the particles that the group looked for was as small as about 700 nanometres (equal to 0.0007 millimetres). This is really small and it remains to be seen if there is a danger of such particles crossing the blood cell walls and affecting the organs. Also, a larger study needs to be conducted to firm up the present findings.*

What are microplastics?

- Microplastics are tiny bits of various types of plastic found in the environment. The name is used to differentiate them from “macroplastics” such as bottles and bags made of plastic.

- There is no universal agreement on the size that fits this bill — the U.S. NOAA (National Oceanic and Atmospheric Administration) and the European Chemical Agency define microplastic as less than 5mm in length.
- However, for the purposes of this study, since the authors were interested in measuring the quantities of plastic that can cross the membranes and diffuse into the body via the blood stream, the authors have an upper limit on the size of the particles as 0.0007 millimetre.

What were the plastics that the study looked for in the blood samples?

- The study looked at the most commonly used plastic polymers.
- These were polyethylene tetrathalate (PET), polyethylene (used in making plastic carry bags), polymers of styrene (used in food packaging), poly (methyl methylacrylate) and poly propylene. They found a presence of the first four types.

Does the presence of microplastics in blood have health impacts?

- It is not yet clear if these microplastics can cross over from the blood stream to deposit in organs and cause diseases.
- The authors point out that the human placenta has shown to be permeable to tiny particles of polystyrene (50, 80 and 24 nanometre beads).
- Experiments on rats where its lungs were exposed to polystyrene spheres (20 nanometre) led to translocation of the nanoparticles to the placental and foetal tissue.
- Oral administration of microplastics in rats led to accumulation of these in the liver, kidney and gut.
- Further studies have to be carried out to really assess the impact of plastics on humans.

Alopecia areata

(Source: [Indian Express](#))

Context: *The audience — both in-person and on TV — at the 94th annual Academy Awards were left in shock after host Chris Rock had an on-stage altercation with Will Smith, who won the award for Best Actor, after the former made a joke about Smith's wife Jada Pinkett Smith's shaved head. Pinkett Smith suffers from a condition known as alopecia areata, which leads to hair loss.*

What is alopecia areata?

- Alopecia areata is a condition that causes sudden hair loss in patches.
- The condition is developed after the immune system attacks the hair follicles, resulting in hair loss, which cannot be observed easily. These patches connect and then become observable.
- Not just the scalp, sudden hairfall may also occur in other parts of the body.
- It can occur suddenly in any part of your body like the scalp, beard, moustache, underarms etc. It may also develop slowly and occur again periodically or repeatedly after years between instances.

What leads to alopecia areata?

- In this disorder, your own cells attack the hair and cause them to shed, forming clear patches of hair loss. It mostly occurs in people who have a family history of auto-immune conditions, such as diabetes and thyroid.
 - *Hereditary or genetic factors
 - *Aging
 - *Loss of essential nutrients & improper diet

- *Psychological pressure and anxiety
- *Hormonal changes during puberty, pregnancy, and menopause
- *Chronic illnesses or auto-immune diseases
- * Hormonal disorders such as polycystic ovary syndrome (PCOS), which affects women of reproductive age
- * Environmental factors like pollution, dust, etc.

What are the different types of alopecia?

- Cicatricial alopecia (non-reversible): It results in scarring of the skin and permanent hair loss. This happens due to lichen planopilaris, trauma, burn, infections, and congenital conditions.
- Non-cicatricial alopecia (reversible): Hair loss can be reversed with no scarring of the skin. Other conditions like androgenetic alopecia (AGA) or male pattern baldness, female pattern baldness, and systemic infection are examples of non-cicatricial alopecia.
- While alopecia areata, traction alopecia and tinea capitis are the common types of baldness in males, androgenetic alopecia, telogen effluvium, anagen effluvium, alopecia areata, and traction alopecia result in baldness in females.

How can alopecia be treated?

- According to experts, alopecia areata can be treated using both medical and natural treatment methods. Medical treatment includes topical agents, injections, oral treatments and light therapy.
- Substances such as zinc and biotin, aloe vera drinks and topical gels, and onion juice are sometimes recommended to be rubbed into the scalp.
- Oils like tea tree, rosemary, lavender, and peppermint, as well as coconut, castor, olive and jojoba oil can be helpful.
- An anti-inflammatory diet, which mainly includes meats and vegetables, scalp massages, herbal supplements such as ginseng, green tea, and Chinese hibiscus, etc, are also used to treat alopecia areata.
- All treatments should be taken under the guidance of a qualified dermatologist.

Variable Refresh Rates

(Source: [The Hindu](#))

Context: Google is said to be testing support for variable refresh rates (VRR) in the Chrome OS 101 Dev Channel, according to a report by About Chromebooks. The feature could improve gaming experience on Chromebooks. Several other device makers have used a form of the VRR in their products to provide superior experience, particularly in gaming.

What is VRR?

- Refresh rate is the number of times a display is capable of refreshing in a second. It is measured in hertz (Hz). So, a 30 Hz or a 60 Hz display can refresh 30 or 60 times per second, respectively.
- The higher the refresh rate, the better the quality of viewing experience. Displays with over 120 Hz can deliver a smoother and more comfortable viewing experience. This is necessary while playing video games or watching videos.
- VRR supports a wide range of refresh rates, allowing its refresh rate to change in real-time based on the frames-per-second (FPS) rate coming from a source device such as a gaming console. For example, displays that support refresh rates from 10 Hz to 120 Hz, or 1Hz to 120 Hz, can adjust to different content styles for a seamless entertainment or gaming experience.

How does the technology work?

- VRR, which is also termed as dynamic refresh rate or adaptive refresh rate by different device makers, is designed to eliminate syncing issues that arise when the refresh rate of a display does not match with the FPS of the content from a source device.
- Issues such as screen-tearing, judder (wobbling effect) and lag are common when refresh rate and FPS are not synchronised.
- This screen technology enables a monitor or a TV to communicate with a gaming console or a media streaming device much more effectively.
- Consequently, when the source device sends video frames as fast as it can, the display is able to adapt its own refresh rate continuously and seamlessly within its specific range to match that of the source.
- VRR is provided by AMD's FreeSync, Nvidia's G-Sync, HDMI 2.1, Apple's ProMotion, and Qualcomm's Q-Sync to name a few. Among these, AMD and Nvidia's VRR have been used in PCs for a number of years, and also in PlayStation and Xbox gaming consoles.



Mains

GS I

Deviancy amplification

(Source: [The Hindu](#))

Context: *Deviancy amplification is a theory that suggests that deviance in a society is the unintended consequence of police control, over-reaction and labelling by the mass media and popular reaction to deviant stereotypes. The term was originally coined by Leslie T. Wilkins who used the expression 'deviation amplification' in his book Social Deviance (1967). The theory is an important element within the sociological critique of conventional criminology which was reluctant in understanding the context behind the concept of deviance and in understanding crime as a social construct.*

What is it?

- The act of going against the norms and laws inscribed by society is termed deviance. Violence among African-Americans is one of the examples where deviancy amplification is witnessed.
- For instance, when there are instances of robbery or gun violence in African-American neighbourhoods, the media tends to exaggerate the incident as a representation of the community instead of displaying it as an individual case of deviance.
- The neighbours in turn are projected as hostile leading to intensifying such deviant behaviour. In contrast, when a white individual shoots students and teachers in a white neighbourhood school, the incident is downplayed and represented as an individual incident, thus preventing any form of misinformation about the community from spreading through media and into the minds of people consuming it.
- Other examples of this include deviant behaviour among adolescents that tend to get exaggerated. Cases of drug use among a few adolescents, for instance, tend to be represented as an issue affecting adolescents across societies.
- This leads to paranoia among parents, which then leads to increased restrictions and prohibitions on teenagers. This then spirals down to provoking more children to use drugs either due to curiosity or as a counter-reaction to said restrictions.
- The concept thus suggests that distorted information and ignorance about minorities in mass society produce inappropriate responses to perceived deviance. Small initial deviances for instance, through over-reaction especially by media coverage, leads to unnecessary attention given to the deviant behaviour giving the impression that the initial exaggeration was a true representation of the deviancy.
- This distorting of knowledge results in further amplification of deviance. The concept of deviancy amplification has been useful in studies of police reaction to drug abuse, sexual offences, group-based violence, political protests among others.

Theory of labelling

- The 'Labelling theory' states that people come to identify and behave in ways that reflect how others label them. Made popular in American sociology by sociologist Howard Becker, the theory takes an interesting approach to understanding deviant and criminal behaviour.
- It explains that no act is intrinsically criminal and explains how crime is a social construct whose definitions are established through formulation, interpretation and implementation of the law by police, courts and governments, controlled by those in power.
- When public stigma and discrimination infiltrate the implementation of the law, unfair labelling takes place. For instance, while most children quarrel, pluck fruits from neighbouring houses and accidentally

break windows while playing cricket, when done by children from poorer communities, they are looked at as young troublemakers.

- The theory suggests that when a person is labelled as a criminal due to a group he/she identifies with, it can cause society to treat the person poorly, which in turn results in the individual becoming deviant.
- Thus, stereotyping and labelling due to poor understanding of individuals and groups by those who have access to broadcasting information can lead to deviancy amplification.

Critique of the theory

- Some critics argue that in trying to correlate labelling and deviance, factors such as differences in socialisation, attitudes, and opportunities that lead to deviance is ignored. They argue that there is no direct proof to show that labelling increases deviancy.
- For instance, though the possibility of an ex-con man going back to doing criminal activities after coming out of prison are high due to the ostracisation he faces from society, it could also be a result of the networks he created with other prisoners and his continued exposure to crime.
- The theory has also been criticised by Jason Ditton's Controlology (1979). He points out the half-heartedness of labelling theory which attempts to extend Wilkin's model to the point at which control may be seen to be operating independently of crime (rather than within a mutually causal framework) on the basis that such liberation will constitute an adequate propositional basis for a fully-fledged labelling theory. He further critiques the theory for failing to show how these spirals are eventually terminated, diminished or abandoned.
- The concept of deviancy amplification, despite critiques, is relevant in understanding that the media's coverage of incidents affects society's reactions towards targeted groups negatively.
- The blowing up of issues by the media can create panic among the masses leading to the ostracisation of an entire community due to the deviance of a few miscreants.
- When used tactically by the ones in power, this can be used as a method to distract the public from far more important issues in society.

Caste analysis and its reading today

(Source: [The Hindu](#))

Context: *Twenty years ago, at the dawn of the new millennium and after the 'Mandal decade' of the 1990s, it looked as though the institution of caste had become legible in a new way (See "Caste and social structure", The Hindu, December 6-7, 2001). The break with the past seemed decisive; a code had been cracked, and caste could be 'read' like never before. Like any newly literate person, we took it for granted that the change was permanent. But the new age of caste clarity lasted barely two decades. Today, in the mid-Modi era after the novel coronavirus pandemic, we are struggling to come to terms with the perception that caste has become opaque again — the code has changed. What has changed? And how has it affected our understanding of caste?*

The 'we'

- To begin with, the perception of the 'we' has changed. It can no longer remain an unmarked universal 'we' that speaks for everyone, but must be acknowledged as upper caste.
- Specifically, this is the vantage point of the overwhelmingly upper caste liberal intelligentsia, a group that certainly has a caste location with its biases, but is more a spectator than a player in the game of caste.
- Unlike players (who must strategise to win the game while taking account of possible moves by opponents and allies), the spectator tries to map all possible moves by all players.

- The other changes can be divided into two kinds — those that are internal to the caste structure itself and those that are located in the larger context. Leaving the contextual changes for later, the internal changes are taken up here, initially in relation to the largest group, the Other Backward Classes (OBCs).

On the OBCs

- The re-orientation of caste in the new millennium happened largely because of the arrival of the OBCs on the national stage. The OBCs were good to think with for several reasons.
- First, the OBCs helped to place caste the right side up. From the Nehru era until the 1990s, the dominant ideology had presented caste as the exception and casteless-ness as the rule. The OBCs forced us to recognise that the upper castes were a minority rather than the ‘general’ or universal category.
- Second, because they were an intermediate group, the OBCs invited closer attention to the notion of backwardness and the interplay of graded privilege and disprivilege in different caste clusters.
- Third, because they were defined as a residual category — neither in the Scheduled Castes (SC) or Scheduled Tribes, nor in the upper castes — the OBCs highlighted the pros and cons of categorisation and the challenge of internal disparities within large groupings. The OBCs were also important in themselves because of their demographic weight and distribution. They were present in most parts of the country and formed a large (usually largest) segment of every class group, from the poorest to the richest. That is why they had a special affinity for federalism and were instrumental in introducing coalition politics at the national level.
- Is this way of reading caste still valid for caste analysis today? The short general answer is yes; but it is the particulars that matter for the more useful long answer.

Internal dynamics

- The single most important change over the past two decades is that the process of internal differentiation within each large caste grouping has now penetrated much deeper.
- The impact of this process depends on the dimension of differentiation and on the contextual features which allow or prevent sub-groups from crystallising as distinct entities with an autonomous trajectory. The most common dimensions of differentiation are economic status, livelihood sources, and regional location. The single most important contextual factor that allows or prevents crystallisation as an independent entity appears to be region-specific electoral influence.
 - For example, the Yadavs of Uttar Pradesh have not only coalesced as a coherent group, but have also facilitated the emergence of a derivative sub-group called the ‘non-Yadav OBCs’. Individual castes within this latter group, however, are yet to acquire a separate electoral identity.
- Similar region-specific developments may be seen in cases such as the Mahars of Maharashtra or the Malas of Andhra Pradesh among the SC groups. But the emergent entity need not be defined as a distinct caste; and it may be an off-stage rather than on-stage actor in the drama of electoral politics.
 - For example, economic differentiation within the upper castes has produced a division into the non-rich, rich and super-rich segments, but these are not sub-castes, and they are not (yet) a separate political constituency and remain within the larger upper caste fold. Nevertheless, such groups demand to be addressed politically and are of crucial ideological importance.
- The upshot is that caste analysis today has no choice but to be fine-grained and multi-dimensional. This is not just a quantitative change — the crystallisation of new political entities triggers qualitative shifts as well, changing the game being played without making it an entirely new game.
- Moreover, caste being fundamentally relational, it is the changing dynamics between and among caste groupings that matters. From the point of view of the social sciences, what this means is that macro-analyses of caste will become more and more difficult; they will end up either as unhelpful (and unsustainable) generalities, or they will simply become a collection of detailed micro-studies.

The sources

- Thus, the apparent opacity of caste today seems to have two different sources. The first is the exponential increase in the complexity of the field, largely because of the differentiation of the initial groupings that were far too big to remain coherent.
- It is not that the code of caste has changed but that the caste-text to be read today is far more advanced. In other words, we have not become illiterate with respect to caste but we have to raise our reading skills to a much higher level.
- However, it is the second source of opacity that is far more consequential, and this is located not within caste but in its relationship to other contextual factors.
- The most important of these are neoliberalism as a hegemonic worldview that re-positioned state and market; the dominance of Hindutva as a political modality; the new media regime that saturates social life; the ongoing restructuring of federalism; and finally, the change in the ecosystem of official statistics.

GS II

An opportunity to repolish India-Nepal ties

(Source: [The Hindu](#))

Context: *The visit of Nepal's Prime Minister Sher Bahadur Deuba to India, beginning April 1 — four years after a Nepali leader visited New Delhi — is significant. It is the first bilateral visit abroad for Mr. Deuba who leads an election government; local elections are to take place on May 13 and federal elections are slated later in the year. In April 2018, Nepal Prime Minister K.P. Sharma Oli had a lacklustre-feel good visit to India, with little achievement worth talking about.*

Details:

- Mr. Deuba assumed office in July 2021, his fifth time as Prime Minister, leading a fragile coalition that has not been able to make Parliament function.
- The Nepal Parliament has been dysfunctional since July 2020 after cracks within the former Communist alliance developed in December 2019. The novel coronavirus pandemic has been a face-saving event for political forces.
- Nepal's relations with India, that plummeted to a historic low after the Indian blockade in September 2015, have yet to recover as Nepalis do not see relations with India improving any time soon. India's refusal to accept demonetised bills with the Nepal Rastra Bank worth just INR ₹7 crore and the unknown fate of the report submitted by the Eminent Persons Group (EPG) have not helped in securing it a better image in Nepal.
- The fact that passengers boarding flights from Nepal to India are still subjected to a pre-boarding security check even over 20 years after the hijack of an Indian Airlines aircraft, determines the perception of trust of India in Nepal.
- This is despite thousands of Nepalis serving in the Indian Army and Nepali villages expressing grief whenever violence escalates in India as many lose their lives defending a country that is not their own.

Complicated geopolitics

- Geopolitics is a complicated challenge for Nepal, whose geography requires it to make best use of its position between China and India. The last couple of months are an example of how complicated it can get. When the Nepalese Parliament ratified a U.S.\$500 million grant assistance-Millennium Challenge Corporation (MCC) pact, there were street protests and big-time social media campaigns supported by China.
- However, India's silence and the offer of other routes for power transmission as an alternative to the MCC confused everyone: was India for or against the MCC grant to Nepal? With relations between India and the United States further complicated by the China factor and India abstaining on the Russia vote in the United Nations even as Nepal voted in favour of it, the problems have continued to mount.
- The recent visit by the Chinese Foreign Minister, Wang Yi, to Nepal has resulted in a situation that everyone in Nepal is trying to decipher.
- Analysts also suggest that Mr. Wang did assure his Indian counterpart that Nepal should work out its internal equations with India and that China would stay out. But in reality, the Chinese engagement has been very deep as seen in the anti-MCC campaign. U.S. grant and investment activities are seeing a revival post the MCC ratification and India does not want to see other powers active in Nepal.
- With Mr. Deuba leading a fragile coalition, there are not many issues he may want to accomplish, but he should be able to push some of the key pending ones.

The main priorities

- First, the power trade agreement needs to be such that India can build trust in Nepal. Despite more renewable energy projects (solar) coming up in India, hydropower is the only source that can manage peak demand in India. For India, buying power from Nepal would mean managing peak demand and also saving the billions of dollars of investments which would have to be invested in building new power plants, many of which would cause pollution.
- Second, while trade and transit arrangements go through the usual extensions, it is time to undertake a complete rethink as the sales of goods and payments moves through electronic platforms — this can provide many new opportunities for businesses on both sides of the border.
- Third, the Bilateral Investment Promotion and Protection Agreement (BIPPA) signed between India and Nepal needs more attention from the Nepali side. A commitment from Mr. Deuba on implementing this would attract more foreign investments from Indian investors. The private sector in Nepal, especially the cartels in the garb of trade associations, are fighting tooth and nail against foreign investments. So, it will be important for Mr. Deuba to deliver a message that Nepal welcomes Indian investments and that he is willing to fight the domestic cartels knowing well that it may dent a bit of funding for his party for elections.
- Finally, it is for Mr. Deuba to provide the confidence that Nepal is keen to work with India while at the same time making it clear that it cannot take on India's pressure to ignore China or the U.S. In the context of Nepalis currently living in 180 countries, India must note that it is a new Nepal it has to deal with from now.
- Perhaps there is hope that the situation can improve — in the appointment of Dr. Shankar Sharma, a seasoned economist, who was also Nepal's Ambassador to the U.S., as Nepal's Ambassador to India. He was responsible for recalibrating Nepal's relations with the U.S. Perhaps we can hope that India will engage with him more deeply without the usual condescending attitude. Perhaps, an open moment has arrived.

This is a criminal attack on privacy

(Source: [The Hindu](#))

Context: *Springing a surprise, the Union Minister of State for Home Affairs, Ajay Mishra Teni, on Monday introduced the Criminal Procedure (Identification) Bill 2022. The Bill was neither put up for pre-legislative consultation nor indicated in the session's legislative agenda in Parliament. Seemingly technical, it is a legislative proposal that undermines the privacy of not only persons convicted of crime but also every ordinary Indian citizen as it proposes replacing a law that is over a 100 years old.*

What needs scrutiny

- Let us first understand why it is being introduced, and what it intends to achieve. The Bill aims to replace the Identification of Prisoners Act 1920 that has been in need of amendment for several decades.
- Back in the 1980s, the Law Commission of India (in its 87th Report) and the Supreme Court of India in a judgment titled *State of U.P. vs Ram Babu Misra* had nearly simultaneously suggested the need to amend the statute.
- The criticism and the need for amendment was predominantly in respect of the limited definition of 'measurements' as under that Act. It seems that this is one of the primary issues that the proposed legislation is designed to resolve.
- In this regard, it might be unexceptional, being an expression of long-held views within the legal establishment. However, the devil is in the details, with three expansions in the power of state surveillance (in the name of criminal reforms) that merit further scrutiny.



- First, the definition of measurements is not restricted to taking measurements, but also their “analysis”, when the definition now states “iris and retina scan, physical, biological samples and their analysis, behavior[u]ral attributes including signatures....”
 - This definition is nebulous and vague. It goes beyond the scope of a law which is only designed for taking measurements and could result in indirectly conferring legislative backing for techniques which may involve the collection of data from other sources. For instance, using facial recognition technology where measurements of persons as under this law are compared with samples taken from the general public.
 - At present there are extensive facial recognition technology programmes for “smart policing” that are deployed all across the country. For instance, the Delhi police use facial recognition technology originally acquired for identification of missing children in 2018 to also screen for “habitual offenders”.
 - Similarly, the Tamil Nadu police deploy facial recognition systems which are integrated with State- and national-level databases including CCTV footage. Such experimental technologies cause mass surveillance and are prone to bias, impacting the fundamental rights of the most vulnerable in India.
- The second area of the expansion of surveillance concerns from whom such “measurements” can be gathered.
 - The existing law permits data capture by police and prison officers either from persons convicted or persons arrested for commission of offences punishable with a minimum of one year’s imprisonment.
 - Parallel powers are granted to judges, who can order any person to give measurements where it is in aid of investigation. While the judicial power is left undisturbed, it is the powers of the police and prison officials that are being widened.
 - The law removes the existing — albeit minimal — limitation on persons whose measurements could be taken. It is poised to be expanded to all persons who are placed under arrest in a case. This is a truly breathtaking spectrum, including petty crime such as violating a prohibitory order for not wearing a mask, jaywalking or a traffic violation.
 - Here, the proposed Bill also contains muddled language stating that a person, “may not be obliged to allow taking of his biological samples”. This, on its surface, offers a choice to a person to refuse.
 - However the words “may not be obliged” may also be read to offer discretion onto a police officer to confer such a choice. In any instance the exercise of such “choice” is presumed in law, it may not be truly voluntary, given the absence of wider accountability reforms in which existing policing practices are coercive.
 - Even if these objections are disregarded, the “choice”, if any, is limited only to, “biological samples” from the wider data points captured within what constitutes, “measurements”.
 - For instance, “iris and retina scan” is mentioned separately to, “biological samples”, and hence a person arrested under any crime or preventive detention law if desired by the police will be required to scan their eyes.
- The third area of concern is the database of the “measurements” which are gathered.
 - The National Crime Records Bureau (NCRB) shall for a period of 75 years from the date of collection maintain a digital record, “in the interest of prevention, detection, investigation and prosecution of any offense”.
 - As pointed out by Prof. Aparna Chandra (an associate professor of law) on Twitter, “How will these records be used for preventing crime except through surveillance?”
 - This becomes clear when the provision permits the NCRB to, “share and disseminate such records with any law enforcement agency, in such manner as may be prescribed”.
- It is important to consider that the NCRB already operates a centralised database, namely the Crime and Criminal Tracking Network & Systems (CCTNS), without any clear legislative framework. The



interaction between the proposed law and CCTNS is not clearly defined though likely, given the powers conferred under for digital records go to the same government department.

- The existence of such legislative power with a technical framework may permit multiple mirror copies and parallel databases of the “measurements” being stored with law enforcement, beyond a State Police department which will be prosecuting the crime and the NCRB which will store all records centrally. For instance, in response to a Standing Committee of Parliament on police modernisation, Rajasthan has stated that it maintains a ‘RajCop Application’ that integrates with “analytics capabilities in real-time with multiple data sources (inter-department and intra-department)”.
- Similarly, Punjab has said that the “PAIS (Punjab Artificial Intelligence System) App uses machine learning, deep learning, visual search, and face recognition for the identification of criminals to assist police personnel.
- This app helps in storing and carrying information about criminals”. Hence, multiple copies of “measurements” will be used by State government policing departments for various purposes and with experimental technologies.
- This also takes away the illusory benefit of deletion which occurs on acquittal and will suffer from weak enforcement due to the absence of a data protection law.
- In sum, once a person enters their “measurements” within the system, they stay there for life given the average life expectancy in India which hovers around 70 years is less than the retention period. The end result is a sprawling database in which innocent persons are treated as persons of interest for most of their natural lives.
- While the impact on persons with privilege may be minimal, the masses — many of whom lack social and economic power in Indian society — may face harsher law enforcement. This becomes clear from the primary research-based article, “Settled Habits, New Tricks”, by Ameya Bokil, Nikita Sonavane and Srujana Bej from the Criminal Justice and Police Accountability Project (the other writers include Avaneendra Khare and Vaishali Janarthanan).
- They pointed to the caste bias against the Pardhi Adivasi community which was at one time designated as a criminal tribe. In this context they state, “In reality since these databases are fed by the police’s centuries-long caste-based system of preventive surveillance and predictive policing (which has already determined who is a criminal and what crimes habitual criminals commit repeatedly), there is no possibility of objectivity or lack of caste bias.
- The CCTNS only adds a technological veneer to a caste-based policing model....” It is foreseeable that if the proposed ambit of “measurements” is expanded and then put in a database, it will likely also target the Pardhis.

Onus is on government

- Injuries to privacy are not mere academic debates and cause real, physical and mental consequences for people.
- To protect individual autonomy and fulfil our constitutional promises, the Supreme Court of India pronounced the Justice K.S. Puttaswamy judgment, reaffirming its status as a fundamental right.
- The responsibility to protect it falls to each organ of the government, including the legislature and the union executive.
- For India to fulfil its claims of being a constitutional democracy, rather than a mere electoral democracy, it will have to be better rather than regressing even from the Identification of Prisoners Act passed by a colonial regime.

Unreformable criminal justice

(Source: [The Hindu](#))

Context: *India's criminal justice regime is beset with problems which seem ingrained in not only the constitutive fabric of institutions, but also in the psyche of their functionaries. Much like we have learned to live with the pandemic, we must learn to live with such problems. As Professor Andrew Ashworth said, "A just and coherent criminal justice system is an unrealistic expectation of the people". It is not our case that we must stop attempting to rid ourselves of such problems, but to ensure that our institutional responses reflect an acceptance of the depth of their roots.*

The problems that are here to stay

- The first such problem is the disposal of pending cases. There are more than 4.4 crore cases pending before the judiciary. It is unlikely that this problem will go away any time soon.
- Second, justice mechanisms will remain inaccessible to marginalised classes of citizens. As Amartya Sen said, our justice system follows a transcendental institutionalist approach where the focus is on getting the institutional arrangements right without regard to the world that emerges from such arrangement. In such a world, where the focus has been upon institution building rather than capacity building, marginalisation of vulnerable sections of society is inevitable.
- The third is the problem of abuse of power by the police. The colonial mindset with which the institution was created is persistent. It determines and governs the manner in which the police discharge their functions. Our stress on crime control values too promotes such abuse of power. To hope that such abuse will end is just wishful thinking unless we are prepared to overhaul the police system overnight.
- Fourth, crime prevention is a utopian goal of our criminal justice system. Achieving a hundred per cent rate of success in crime prevention through either laws or policing is an unattainable ideal. Successive empirical research studies have shown that higher punishment has little impact on lowering crime rates. Similarly, initiatives such as community policing mechanisms and situational crime prevention are yet to deliver any concrete results.
- Fifth, diversionary principles in the treatment of offenders are yet to materialise. Even as several Law Commissions and committees have recommended non-custodial measures of punishment of offenders, these are yet to translate into practice. Even when we have a problem of overcrowding of prisons, custodial punishments are seen by the governments as a more effective measure.
- Sixth, there is a dearth of reliable state-sponsored data collection, maintenance and analysis mechanisms. The National Crime Records Bureau's data mark the extent of such data collection and analysis. The methodologies adopted by the reports can be criticised on multiple grounds. Little effort is made by the state to map the perceptions of justice by the victims and the common man. The state also does not seem to realise that there is a dearth of reliable data.
- It must be noted that problems are not limited to the ones highlighted. Reforms in criminal laws and criminal justice, however, seem to have been recommended and conducted with the assumption that these problems will go away with time and effort.
- Our experience shows that this is not true. On the contrary, it must be assumed that these problems are here to stay unless drastic changes are made concurrently at the institutional, social and individual levels.

Accepting issues

- Accepting these problems as assumptions is likely to have a favourable impact on the way we plan our institutional reforms and responses.
- To illustrate, if we accept that our institutional arrangements cannot guarantee access to justice for the most vulnerable sections of society, our approach would automatically shift towards building the capacity of such sections to tap into the criminal justice system.
- Similarly, it is only when we assume that abuse of power by the police is not going anywhere and that imposing mere ethical obligations on police officers will not resolve the problem can we move into the

realm of developing independent investigative procedures and stern punitive sanctions against errant police officers.

- If we accept that the problem of pendency of cases has acquired such huge proportions that we cannot dispose of all of these cases in 10 lifetimes, maybe we would be able to rein in our tendency to over-criminalise conduct.
- Any and all recommendations made by researchers and reformists must be made after considering these problems to be a reality.
- Any project aimed at criminal justice reform must instead accept the problems we have as assumptions. Only then can we shift the discourse to bringing about holistic reforms in our criminal justice system.

Bridging the bay in quest of a stronger BIMSTEC

(Source: [The Hindu](#))

Context: Sri Lanka is gearing up to host the Fifth Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) Summit, now in its silver jubilee year (the summit is being held in virtual/hybrid mode on March 30, and Sri Lanka is the current BIMSTEC chair). This special occasion makes it imperative for BIMSTEC leaders to reinforce their commitments and efforts in building the momentum of collaborations in the Bay of Bengal region for the security and development of all.

Details:

- This summit is expected to build the required momentum of collaborations among the member states — Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka and Thailand — as there has been commendable teamwork among them and a finalisation of several agreements to enhance regional strategic and economic integration.
- The unique ecology of BIMSTEC is witnessing enriched political support and commitment from India.
- Undoubtedly, BIMSTEC has special significance for India in a changing mental map of the region. India has made the Bay of Bengal integral to India's 'Neighbourhood First' and 'Act East' policies which can accelerate the process of regional integration. BIMSTEC matters for India and the region.

An area of importance

- Finalising the BIMSTEC Charter; BIMSTEC Master Plan for Transport Connectivity; BIMSTEC Convention on Mutual Legal Assistance in Criminal Matters; BIMSTEC Technology Transfer Facility (TTF); cooperation between diplomatic academies/training institutions; and a template of Memorandum of Association for the future establishment of BIMSTEC centres/entities present signs of optimism as well as the comeback of the Bay of Bengal as a new economic and strategic space.
- Further, the economic and strategic significance of the Bay of Bengal is growing rapidly with a re-emergence of the idea of the 'Indo-Pacific' region.
- This notion assumes that the growing economic, geopolitical and security connections between the Western Pacific and the Indian Ocean regions are creating a shared strategic space. The Bay of Bengal is evolving as the centre of the Indo-Pacific region again. The renewed focus has given a new lease of life to the developmental efforts in the region, in particular BIMSTEC.
- As the BIMSTEC process turns 25 years, it is all set to make visible progress through advancing concrete cooperation among the member states. They have invested some fresh energy in the last couple of years to make BIMSTEC a valuable institution for regional integration and collaboration.

A bridge between Asias

- BIMSTEC has huge potential as a natural platform for development cooperation in a rapidly changing geopolitical calculus and can leverage its unique position as a pivot in the Indo-Pacific region. There has been tangible progress in BIMSTEC cooperation in several areas that include security, counter-terrorism, intelligence sharing, cybersecurity and coastal security, and transport connectivity and tourism, among others.
- The growing value of BIMSTEC and its attempt to generate synergy through collective efforts by member states can be understood, for three key reasons.
- First, there is a greater appreciation of BIMSTEC's potential due to geographical contiguity, abundant natural and human resources, and rich historical linkages and a cultural heritage for promoting deeper cooperation in the region.
 - Indeed, with a changed narrative and approach, the Bay of Bengal has the potential to become the epicentre of the Indo-Pacific idea — a place where the strategic interests of the major powers of East and South Asia intersect.
 - Political support and strong commitment from all member countries are crucial in making BIMSTEC a dynamic and effective regional organisation.
- Second, BIMSTEC serves as a bridge between two major high-growth centres of Asia — South and Southeast Asia.
 - Connectivity is essential to develop a peaceful, prosperous and sustainable Bay of Bengal region.
 - Therefore, BIMSTEC needs to address two dimensions of connectivity – one, upgrading and dovetailing national connectivity into a regional road map; and two, development of both hard and soft infrastructures.
 - The BIMSTEC Master Plan for Transport Connectivity will provide the necessary boost to connectivity.
 - There is growing involvement of educational institutions, industries and business chambers through various forums and conclaves which are helping to enhance cooperation in the areas of education, trade and investments, information technology and communication among others.
 - Resisting the temptation to make lofty promises, the BIMSTEC leaders have focused on priority areas through a concrete action plan on time.
- Third, the BIMSTEC Secretariat coordinates, monitors and facilitates the implementation of BIMSTEC activities and programmes.
 - The leaders must agree to strengthen the institutional capacity of the BIMSTEC Secretariat. Approval of a charter for BIMSTEC during the summit will further augment its visibility and stature in international fora.
 - Likewise, India has implemented its promise to set up a Centre for Bay of Bengal Studies (CBS) at Nalanda University, Bihar for research on art, culture and other subjects related to the Bay of Bengal.
- The quest for economic growth and the development of the BIMSTEC region can be achieved with single-minded focus and cooperation among the member counties.
- In this endeavour, India has a key role in accelerating regional cooperation under the BIMSTEC framework and in making it vibrant, stronger and result-oriented.

The move to ease voting for overseas citizens

(Source: [The Hindu](#))



Context: On March 25, Union Minister for Law and Justice Kiren Rijiju in response to a question in the Lok Sabha stated that the government was exploring the possibility of allowing online voting for non-resident Indians (NRI). The minister's statement on easing voting for NRIs comes in the wake of a proposal made by the Election Commission of India (ECI), that wrote to the Law Ministry in November 2020, to extend the facility of postal ballots to eligible NRIs for the various State Assembly elections to be held in 2021. The ECI then, had proposed amending the Conduct of Election Rules, 1961, in order to allow this facility. The postal ballots were to be sent to NRIs electronically after which they will send the ballots back, after choosing their candidate, via post.

How can overseas voters currently vote in Indian elections?

- Prior to 2010, an Indian citizen who is an eligible voter and was residing abroad for more than six months, would not have been able to vote in elections. This was because the NRI's name was deleted from electoral rolls if he or she stayed outside the country for more than six months at a stretch.
- After the passing of the Representation of the People (Amendment) Act, 2010, eligible NRIs who had stayed abroad beyond six months have been able to vote, but only in person at the polling station where they have been enrolled as an overseas elector.
- Just as any resident Indian citizen above the age of 18 years is eligible to vote in the constituency where she/he is a resident, overseas Indian citizens are also eligible to do so. In the case of overseas voters, their address mentioned in the passport is taken as the place of ordinary residence and chosen as the constituency for the overseas voter to enrol in.

How has the existing facility worked so far?

- From merely 11,846 overseas voters who registered in 2014, the number went up to close to a lakh in 2019. But the bulk of these voters (nearly 90%) belonged to just one State — Kerala. Of the 25,606 such voters who actually turned up, 25,534 were from Kerala (mostly from Kozhikode and Malappuram districts).
- Clearly, a very low proportion of eligible overseas residents actually registered or turned up to vote. The Representation of the People Act, envisaged voters as only the “ordinary residents” in a constituency who will choose representatives to represent their local interests while mediating on larger issues in the legislature.
- Some democracies that already allow absentee voting stipulate that overseas electors are eligible to vote provided they are not abroad for a specified period of time and/or if they mention an “intent to return”.
- Section 20-1A, Part III of the Representation of the People Act addresses this to some extent by qualifying “a person absenting himself temporarily from his place of ordinary residence shall not by reason thereof cease to be ordinarily resident therein” and in essence provides for NRIs who are temporarily staying abroad to be eligible to vote in their local constituencies.
- Yet, the proviso of having to visit the polling booth in person has discouraged eligible voters from exercising their mandate.
- In the winter session of Parliament in 2017, the government proposed to remove the restriction imposed by Section 20A of the Representation of the People Act, which required them to be physically present to vote in their constituencies.
- The Bill provided for overseas voters to be able to appoint a proxy to cast their votes on their behalf, subject to conditions laid down in the Conduct of Election Rules, 1961.
- The Bill was later passed in 2018, but lapsed with the dissolution of the 16th Lok Sabha. The ECI then approached the government to permit NRIs to vote via postal ballots similar to a system that is already used by service voters, (a member of the armed Forces of the Union; or a member of a force to which provisions of the Army Act, 1950 (46 of 1950) which is the Electronically Transmitted Postal Ballot System or ETPBS).

What is ETPBS and how does it function?



- The Conduct of Election Rules, 1961 was amended in 2016 to allow service voters to use the ETPBS. Under this system, postal ballots are sent electronically to registered service voters.
- The service voter can then download the ETPB (along with a declaration form and covers), register their mandate on the ballot and send it to the returning officer of the constituency via ordinary mail. The post will include an attested declaration form (after being signed by the voter in the presence of an appointed senior officer who will attest it). The postal ballot must reach the returning officer by 8 a.m. on the day of the counting of results.
- The ECI proposed to extend this facility to overseas voters as well. For this to commence, the Law Ministry has to amend the Conduct of Election Rules, 1961. In the case of NRI voters, those seeking to vote through ETPBS will have to inform the returning officer at least five days after notification of the election. The returning officer will then send the ballot electronically via the ETPBS.
- The NRI voter can then register her/his mandate on the ballot printout and send it back with an attested declaration in a process similar to the service voter. Except in this case, the senior officer would be appointed by the Indian diplomatic or consular representative in the resident country of the NRI.
- The ECI has not specified whether the voter should send in the ballot through ordinary post to the returning officer or drop it off at the Indian consular office/embassy, which will then send the envelopes constituency-wise to the returning officers.

Will this facility be available to all overseas voters across countries?

- There were news reports that the ECI had indicated to the Ministry of External Affairs that it would want postal voting introduced on a pilot basis in non-Gulf countries.
- But ECI officials told The Hindu that the ECI had asked the Law Ministry to explore the possibility of extending postal ballots to overseas electors and not restrict it to any particular country.
- In March 2021, the Ministry of External Affairs informed ECI that the implementation could require to overcome “huge logistical challenges” and needs “a realistic assessment of requirements”

Are postal ballots a viable means of voting?

- The ETPBS method allowed for greater turnout among service voters in the 2019 Lok Sabha election.
- With increasing mobility of citizens across countries for reasons related to work, the postal ballot method has been recognised by the International Institute for Democracy and Electoral Assistance (an intergovernmental organisation that works to support democratic processes and institutions) as a means to allow overseas voters to exercise their right, subject to certain conditions normally related to the time spent abroad or the work carried out abroad.
- A postal ballot mechanism that allows for proper authentication of the ballot at designated consular/embassy offices and an effective postal system should ease this process for NRIs, but rules must be clearly framed for eligibility on the basis of time spent away from the country.

A parliamentary Bill the ICAI needs to take note of

(Source: [The Hindu](#))

Context: *The Lok Sabha approved a Bill to amend the Chartered Accountants Act, 1949, the law that governs the Institute of Chartered Accountants of India (ICAI). It also amends the Cost and Works Accountants Act, 1959 and the Company Secretaries Act 1980.*

Details:

- Introduced in the Lok Sabha on December 17, 2021, and titled the Chartered Accountants, the Cost and Works Accountants and the Company Secretaries (Amendment) Bill, 2021, the key changes it proposes

are: Discipline: the ICAI's disciplinary committee and board of discipline will be chaired by non-chartered accountants (CA), and its elected council members will no longer be in a majority in them.

- And then, governance and administration: the term of the ICAI's Council will be raised from three to four years, and the maximum number of consecutive terms for its elected members will be reduced to two from the current three; the ICAI's Secretary will replace the ICAI's president as its chief executive and perform the functions to be specified; the ICAI will appoint its auditor from the Comptroller and Auditor-General of India's panel of CA firms; and the Government will form a coordination committee for the ICAI and the Institutes of Cost Accountants and Company Secretaries of India.
- If done well, these changes should strengthen the ICAI's accountability, governance, and administration. The Parliamentary Standing Committee on Finance has endorsed these changes and has further recommended an end to the ICAI's monopoly in certification.

Training, disciplinary record

- Exams and articleship are the rites of passage for CA aspirants. The examinations are reputedly hard to crack. The three-year articleship gives hands-on training. That said, senior industry managers bemoan that many CAs do not have what it takes to succeed in the corporate world, i.e., analytical ability, critical thinking, appreciation of the business context, grasp of technology, and communication and presentation skills.
- CA students do not have in-class interaction. Also, the coaching is focused on cracking examinations rather than facilitating understanding and application. Of course, the unpredictability of examination outcomes does not help.
- Further, today's school leaver thinks about 'cool' careers such as pursuing an MBA, law, AI/ML (artificial intelligence and machine learning), data science and web design. So, it is no surprise that CA student enrolment in 2021 was a third lower than in 2010.
- The ICAI's record in disciplining its members is even more problematic. There have been persistent complaints that the ICAI is lax in acting against errant members.
- On the occasion of Chartered Accountants Day on July 1, 2017, the Prime Minister, Narendra Modi, was critical of the CA community for its lack of quality and integrity. It was a serious indictment of the ICAI's self-regulation.
- In 2018, the Government had set up the National Financial Reporting Authority as India's first independent regulator of accounting and audit. The proposed changes in the composition of the ICAI's disciplinary arms will further limit its role. As a result, the ICAI will be effectively reduced to an examination board.

Historical baggage

- Chartered accountancy is an odd fusion of medieval, colonial and licence raj institutions and practices. Articleship is a source of cheap, and tame, labour for some practitioners. The idea of training by members of a trade association goes back to medieval guilds.
- Much of the work that CAs do and clamour for is a remnant of the licence raj. Many businesses and professions have changed beyond recognition as a result of the economic reforms initiated in 1991.
- The demutualised and technology-driven National Stock Exchange of India has transformed stock-broking. Indian IT and pharma companies now compete successfully with the best in the world. India's entertainment industry has a worldwide audience. Even in a licensed profession such as law, the five-year degree has become a sought-after qualification.
- In contrast, CA has not kept pace with the changes in India's dynamic economy and changing society. The ICAI was set up in 1949, largely as the Indian version of the U.K. institute. Its evolution since then has mirrored the rise of the licence raj that was characterised by uncompetitive capital, product and labour markets, worthless form-filling and box-ticking, and incredibly high tax rates.
- The focus of Indian business back then was on how to make money by beating the system rather than by improving efficiency, relevance and competitiveness. CAs greatly benefited from that system.

- They kept beseeching the government for mandatory work such as issuing import utilisation certificates, tax audit, public sector bank branch audit, concurrent audit, and so on. Most of such work is of dubious value.
- Ironically, among CAs, “professional development” does not mean skill upgradation but is a code for getting low-value work from government entities. Elected council members have no reason to rock the boat. This is not sustainable.
- AI/ML is already playing a significant role in medical diagnosis and legal drafting and case analysis. Accounting and auditing are more amenable to the replacement of humans by technology. AI, robotics, and other technological advances are likely to reduce the need for human intervention in accounting.
- Also, recent administrative reforms aimed at enabling ease of doing business and ease of living, such as faceless tax assessment, easy filing of tax returns, prompt refunds, rising threshold for tax audit, and abolition of Goods and Services Tax audit have greatly reduced the availability of captive, government-mandated, make-work business for CAs.
- Puzzlingly (or perhaps not), overseas accountancy qualifications such as the Association of Chartered Certified Accountants (ACCA) and Chartered Institute of Management Accountants (CIMA) are gaining popularity in India, perhaps because they are recognised worldwide, are more relevant to current and future needs, and are accepted even in India by global companies and global accounting firms.

Having IIAs

- The Parliamentary Committee’s suggestion to set up a string of Indian Institutes of Accounting (IIAs) on the lines of the Indian Institutes of Technology (IIT) and the Indian Institutes of Management (IIM) is innovative.
- The IIAs will offer a five-year full-time and broad-based degree in accounting, auditing and related areas and their graduates. At one level, they will end the ICAI’s statutory monopoly over certification. More competition should result in better quality and higher standards of conduct.
- Though the ICAI and the IIAs are different, they have to compete for the same talent pool. At another level, the IIAs can greatly enhance the quality of education with a wholesome curriculum. By broadening access, they can make the accounting community more inclusive and socially diverse.
- Accounting institutes in other countries including the United Kingdom have changed. The Bill and the Parliamentary Committee’s report can be seen as efforts to drag the ICAI to the contemporary world, kicking and screaming if needed. The ICAI’s leadership needs to ponder and explain the reforms to its membership. It would be wise to read the proposed changes as a warning and respond maturely.

GS III

The era of an unemployed India

(Source: [The Hindu](#))

Context: Reports on and the visuals of the recent agitations by railway job applicants reveal a widespread problem of massive job insecurity among India's youth.

Details:

- Alarming figures of unemployment have been recurrent even before the huge dislocation unleashed by lockdowns imposed in 2020-21 in the wake of the COVID-19 pandemic.
- Much before the pandemic, the National Sample Survey Office (NSSO) reported a 6.1% unemployment rate in 2017-18, the worst in over four decades. The picture has proved more dismal in the ensuing months since April-May of 2020.
- For instance, in December 2021, the Centre for Monitoring Indian Economy (CMIE) estimated that nearly 53 million Indians were unemployed, a large proportion of whom were women.
- The unemployment rate was hovering at 7.91% in December 2021, and though there has been some talk of a dip in unemployment in January 2022, the figure still stands at a worrying 6.57%.

Exposing claims

- Percentages and data spun out by governmental agencies and policy think-tanks are open to contestation, but there are other indices of proof that seriously contradict the tall claims of employment generation.
- One such index is the downward pressure unleashed by the influx of overqualified youth aspiring for middle and lower rung government jobs, which, despite their modest pay, are highly coveted given the greater job security ascribed to them.
- Expectedly then, having advertised over 35,000 posts, the Railway Recruitment Board was swamped with over 1.25 crore applications; a significant proportion of which were postgraduate degree holders. This created massive insecurity among a section of candidates who met the minimum eligibility but were being forced to compete with candidates having higher educational credentials.
- With government jobs being limited, and reducing in number due to the contractualisation and outsourcing of several substantive posts, intense competition persists across various categories of jobs; a point brought to light yet again by the recent Railways' recruitment controversy.
- As clarified by the Railway Recruitment Board and Union Railway Minister, for the second stage of testing that stoked protests, the huge number of aspirants for the lowest right up to the highest level of jobs advertised, eventually compelled the authorities to shortlist 20 times the number of candidates for all levels.

Explaining the scramble

- Shockingly, advertisements for even a handful of lower rung government jobs attract an overwhelming number of applications, leading at times to the withdrawal of such advertisements. In September 2021, news reports highlighted that among 18,000 applicants for some 42 posts (peon, gardener and cook) in the Himachal Pradesh secretariat, there were hundreds of doctorate and other postgraduate applicants.
- Earlier, in March 2021, more than 27,000 candidates with degrees such as BA, BSc, MA, MSc, MCom, MBA, engineering, etc. had applied for 13 positions for a peon's job in the Panipat district court.
- Likewise, for 62 posts of messengers in the Uttar Pradesh police, in August 2018, there were a total of 93,000 applicants; 3,700 were PhD holders and 50,000 were graduates. This particular job vacancy required an education level of Class V and the selection criterion comprised a self-declaration that the candidate knew how to ride a bicycle.

- The desperate scramble for government jobs stems in no uncertain terms from the high job insecurity (easy hire and fire), poor basic pay, and long hours of work that characterise the bulk of jobs in the private sector.
- Historically, only a small number of employer-employee work relations in India — associated mostly with the formal sector — have been subject to state regulation.
- However, in recent decades, there has been a steady decline of state regulation of labour-capital relations in the formal sector.
- This deregulation has been coupled with a concerted push toward rapid privatisation of the public sector.
- Together, these developments have contributed significantly to periodic unemployment among both skilled and less skilled workforces, in addition to reducing avenues of gainful employment for new entrants in the job market.

A spillover effect

- The ramifications of this overall process are multifold. At one level, enhanced deregulation of employer-employee work relations in the formal sector has triggered periodic unemployment of higher skilled workers, who have been spilling over into and crowding lower-skilled, informal sector jobs.
- Likewise, the spillover effect of periodic unemployment within middle-rung and higher-rung professional jobs in India's job market has pushed more qualified youth to crowd lower rung government jobs.
- This tendency itself has rendered a deep crisis for those with lower educational qualifications who strive for the more modest government jobs, and for whom such employment has traditionally been envisaged.
- Reduced expenditure by the state on health, education and the social sector as a whole has also ensured inadequate employment generation, despite the fact that the demand for 'public goods' has been growing exponentially.
- For a country with growing educational needs, especially with large numbers seeking to escape inherited poverty through avenues opened up by education, the marked shortage of government schools and public-funded universities is alarming to say the least.
- A closer look at the higher education sector itself reveals a steady increase in the number of student applicants. The scenario naturally calls for many more job recruitments of qualified teachers through the creation of new public-funded Higher Educational Institutions (HEIs) and an expansion of existing ones.
- However, successive governments continue to restrict and even delay recruitment of teachers to existing public-funded HEIs. For example, in a large public-funded university such as the University of Delhi, a recruitment crisis has intensified over the years with over 4,500 teaching posts being filled by ad hoc teachers and appointments to permanent positions being stalled repeatedly.

Antinomy of eligibility

- This recruitment crisis is also the result of an inexplicable delay in the grant of the second tranche of teaching positions that was to accompany institutional expansion in the wake of implementation of reservations for Other Backward Classes (OBCs).
- A recipe for a complete disaster continues to unfold in such universities as a large, highly skilled workforce of serving teachers defensively holds on to insecure temporary job contracts as more eligible fresh candidates enter the job market.
- One of the contentious consequences of such heightened competition has been the enforcement of higher and higher qualifications for entry-level teaching jobs in public-funded HEIs.
- In this way, another index of mounting job insecurity and unemployment is the arbitrary enhancement of educational qualifications stipulated for recruitment into better-paid government jobs, as well as new criteria for admission into professional training institutions.
- This tendency has not only manifested itself in public-funded HEIs wherein entry-level teaching positions now mandatorily require a PhD degree in addition to a Master's degree and UGC-NET qualification.

- It is also evident in the barrage of common entrance tests for highly sought-after educational degrees such as in medicine (National Eligibility cum Entrance Test, or NEET), as well as centralised eligibility tests for recruitment into jobs such as school teaching (Central Teacher Eligibility Test, or CTET). As the number of seats and vacancies fail to be augmented, we see a systematic effort to ruthlessly eliminate a growing number of aspirants using astute tests and arbitrary criteria.
- In the backdrop of a large number of skilled and overqualified people languishing in the throes of unemployment, the shrill rhetoric of ‘Skill India’ rings hollow. We will see more instances of frustration and agitations by the youth in response to rampant unemployment.
- For the scores of educated aspiring youth, transcending the prevailing logic of the economy is a crucial starting point for envisaging a world free of unemployment. An economy that creates fewer jobs is one which overworks some while rendering large numbers unemployed.
- A tired India and an unemployed India are simply two sides to the same coin. The youth need to realise that their fulfilment of dignified employment cannot happen in isolation but is linked to how the sea of highly exploited labouring masses around them are also guaranteed their access to the basics — education, health and livelihood. A transformation of circumstances awaits newer sensibilities and a sense of solidarities.

Poverty rose but income inequality fell

(Source: [The Hindu](#))

Context: *COVID-19 has upended Indian society. Over two-thirds of the country has been infected by COVID-19 and perhaps five million or so people have died, directly or indirectly, from the pandemic. The economy too has taken a beating. Even though there has been a V-shaped recovery, output remains about 10% lower than 2019.*

Details:

- In macroeconomic crises, including the oil shock of 1990-91 or the global liquidity crisis of 2007-08, many expect the poor to bear the brunt of the pain. They are the most vulnerable, without contractual protections and adequate safety nets. But there are signs that this pandemic has not followed that script.
- Poverty certainly rose during the COVID-19 pandemic. We examined monthly data from nearly 2,00,000 households with a total of one million members from the Consumer Pyramids Household Survey through 2021.
- We found that extreme poverty, defined by the World Bank as the percentage of the population with an income below \$1.90, rose from 7.6% in November 2019 to 11.7% in July 2021.



Source of inequality

How different sources of income contributed to inequality during the pandemic



| Components of income | Change in inequality due to | |
|----------------------|--|---|
| | Change in share of income from component | Change in amount of income from component |
| Total income | | -39.74 |
| Labour income | 5.41 | -24.93 |
| Transfer income | 0.18 | -0.33 |
| Other income | -2.03 | -1.97 |
| Business income | -6.70 | -9.38 |

Note. Changes are from 2019 average to July 2021. Units are percentage points. Source is Consumer Pyramids Household Survey.

Income inequality

- However, income inequality actually fell. In 2019, the average monthly income of households in the top 25% and bottom 25% of the income distribution was approximately ₹45,000 and ₹8,000, respectively, in urban areas, and ₹22,500 and ₹7,500, respectively, in rural areas.
- While the average monthly income of the top quartile in urban areas fell almost 30%, to ₹32,500 by July 2021, the monthly income of the bottom quartile in July 2021 remained at pre-pandemic levels. In rural areas, the top quartile income fell by perhaps 20%, while the bottom quartile income grew slightly during the same period.
- The result is that inequality, measured as the percentage change in the income of the top quartile minus the income in the bottom quartile, fell by 15-20 percentage points. This is a robust finding: richer households saw larger drops in income all along the income scale, in rural and urban areas, within each State, and even within caste groups.
- This remarkable finding is not unprecedented. Historians observed the same dynamic during the plague in 14th century Europe. Given how much the world economy has changed since then, however, the explanations for India's experience will differ.

Three sources of income

- To learn why inequality fell during the pandemic, we examined three sources of household income: government transfers, business profits, and labour income. Government transfers are cash or in-kind payments. Profits may be from any business, be it a food cart, a farm, or a manufacturing plant. Labour income is wages earned from hourly work or employment contracts.
- Government payments to the poor cannot explain the decline in inequality. To be sure, income support was not insubstantial. Households received roughly ₹400 per month in urban areas and nearly ₹500 per month in rural areas during the lockdown and the Delta wave.
- They received roughly half that much during the rest of the pandemic. However, even when government transfers were netted out from income, income inequality fell by over 20% points by July 2021.
- Business profits play a bigger role than transfers. The rich saw a larger decline in business income and depended more on that income than the poor. While just 7% of a bottom quartile household's income is from a business, nearly 15% of a top quartile's household's income is from a business. Unlike labour income, business income is volatile because it is susceptible to changes in demand, and thus to aggregate income.



- We find that business income of the top quartile is four times more sensitive to the aggregate performance of the economy than the business income of the bottom quartile. Given the large negative effect of COVID-19 on the economy, this suggests that some of the disproportionate losses of the rich operate through business income.
- Labour income, however, plays a critical role (Table). Labour income is just over 65% and 80% of the income of the top 25% and bottom 25% of households. These are larger shares than those of government transfers or business profits. To explain the decline in labour income, we looked at supply-side and then demand-side explanations.
- Looking at supply, one might suspect the rich chose to work less than the poor, perhaps out of fear of contracting COVID-19. That was also our conjecture, but it proved wrong. When the economy contracted, people lost jobs and income.
- They tried to compensate by finding alternate work, sometimes even in other occupations. While this seems a natural response for the bottom 25%, it was even more true for the top 25%. While the minimum amount that the poor were willing to accept to take a job fell roughly 40%, the minimum amount fell more than 45% for the rich.

Demand for labour

- The better explanation for the disproportionate loss of labour income among the top quartile households is that demand for their labour fell more. The rich tend to work in the service sector, and demand for services fell more than demand for other sectors.
- While 30% of workers in bottom quartile households work in the service sector, 45% of workers from the top quartile households do. During the pandemic, consumer spending on services fell by 30%-40%, far more than the decline in spending on manufacturing or agriculture.
- The situation was reversed in manufacturing. That sector employs a larger share of bottom quartile workers than top quartile ones: 35% versus 15%. But manufacturing declined less than 20% during the pandemic. The progressive contraction of demand for services swamped the regressive contraction of demand for manufacturing.
- To be clear, our analysis does not suggest that the pandemic was good for the Indian economy. The loss of life and rise in poverty make it one of the larger disasters the country has borne. The reduction in inequality would be a silver lining if it were accomplished by lowering poverty rather than reducing the income of the rich.
- Nevertheless, by understanding the decline in inequality during the pandemic we can assess prospects for inequality after it ends. Once demand for services rises, along with aggregate income, both demand for the labour of the rich and the business income of that group will likely return. There is a risk that inequality will return to pre-pandemic levels.

Beyond record exports

(Source: [The Hindu](#))

Context: *On March 21, the value of India's outbound shipments in the financial year 2021-22 hit \$400 billion, the highest ever. By the time the year closes this Thursday, another \$10 billion worth of goods is expected to be shipped out. This would translate into a growth of about 41% from the pandemic-hit year of 2020-21, making it India's fastest exports growth rate since 2009-10.*

How significant is the attainment of India's \$400 billion exports target?

- First, 2021-22 reflects the first time in several years that the country has met its exports target, but for greater context, India's trend line in exports before the COVID-19 disruptions was nowhere close to this

year's performance. According to data from the Reserve Bank of India, outbound merchandise trade had clocked \$303.5 billion in 2017-18, \$330.1 billion in 2018-19 before slipping to \$313.4 billion in 2019-20, when numbers were slightly dented due to the harsh national lockdowns imposed in the last week of that financial year.

- While higher prices of commodities and oil helped drive up the value of exports, with petroleum products exports jumping over 141%, some of India's industrial sectors shone through as well.
- Engineering exports, for instance, have jumped 46.5% to cross \$100 billion for the first time, even as chemicals, cotton yarn, handloom products, and the apparel industry have done well. India has managed to achieve its export target despite supply disruptions due to the pandemic, the challenging shortages of shipping containers and surging freight rates.
- Part of this could also be explained by the world shifting its global procurement preferences to diversify their dependence on China following the outbreak of the COVID-19 virus. Australia, which is in the midst of a shrill trade battle with China, has made way for India, taking exports up 94% so far this year.
- Shipments to the U.S. are also up 47%. India would hope to consolidate these gains and establish its credentials as a credible alternative to China, even as it could face stiff competition in some sectors from Asian peers such as Vietnam and Bangladesh.

What about imports and the trade deficit?

- Even as exports may rise nearly \$120 billion this year, India's imports have shot up to record levels and could end up nearly \$200 billion over 2020-21's import figure of \$393.6 billion.
- The trade deficit for the year could be around \$190 billion, sharply higher than the \$102 billion recorded in the pandemic year. The monthly trade deficit has been spiking recently and had hit a record \$22.9 billion in November 2021, with imports gaining greater momentum than exports.

What are the risk factors for Indian exports in the coming year?

- Although India's direct trade with Russia is not significant at about 1% of its trade basket, the Ukraine-Russia conflict may create some more opportunities for Indian farm produce exports, especially for crops like wheat and maize.
- But this would be offset by a sharp rise in India's energy import bill as well as an uptick in costs of importing edible oils like sunflower oil, whose production is dominated by the two nations at war. India imports 80% of its oil and demand is likely to grow as the economic recovery picks up pace, provided the pandemic doesn't resurface.
- This could translate into a 'term-of-trade' shock, with elevated trade and current account deficits and sustained pressure on the rupee even as monetary tightening in the developed world may suck out dollars from emerging markets.
- The RBI Governor Shaktikanta Das has pointed out that unlike the taper tantrum of 2013, the country's foreign exchange reserves, adequate to cover more than 12 months of imports, are robust and can finance higher current account deficits if needed. Most economists, however, expect the rupee to weaken over 2022-23, which in turn could be a minor perk for exporters.
- While high shipping rates, container shortages and re-alignment of trade routes around the Black Sea will pose a challenge, timely actions on the policy front could help create more export opportunities.
 - First, a swift conclusion of Free Trade Agreement pacts being negotiated with countries like the U.K., Australia and Canada, could create easier market access in these large markets.
 - Second, exporters await a long-overdue revision of the Foreign Trade Policy for 2015-20, that has now been extended into the first few months of 2022-23 as well.
 - Third, a parliamentary committee has urged the government to include Special Economic Zones and sectors such as pharma, steel, and chemicals under the Remission of Duties and Taxes on Export Products (RoDTEP) Scheme, which finally kicked off last year after a significant delay.
- These could help balance out some of the bigger tectonic shifts in trading patterns from the European crisis, including a firming up of the COVID-induced inward-looking shift in nations' stance on globalisation.

Profit over public health

(Source: [The Hindu](#))

Context: *The pandemic has tested the resilience of the global community on various fronts such as whether it can unite to ensure the availability of COVID-19 medical products for everyone. In this regard, India and South Africa, in October 2020, gave a clarion call at the World Trade Organization (WTO) demanding that key provisions of the Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement be temporarily waived. The developed world, especially the European Union (EU), kept dragging its feet on this while the virus raged on. Now, the EU has conceded. A deal has been brokered between the EU, the U.S., India, and South Africa on the issue of the TRIPS waiver. This deal will now be presented to the entire WTO membership to be accepted at the forthcoming ministerial meeting. However, the waiver is a classic case of too little, too late, and represents a significant climb down from the original proposal of India and South Africa.*

Waiver weaknesses

- First, the draft waiver includes only COVID-19 vaccines and not other COVID-19 medical products. This is a major handicap. Medicines also play an equally important role in combating the pandemic.
 - For instance, the World Health Organization (WHO) has recommended baricitinib for treating severe or critical COVID-19.
 - But according to the Médecins Sans Frontières, the generic version of baricitinib is not available in many countries because it is patented. This defeats the purpose of the TRIPS waiver, which was to ensure cheaper and faster availability of drugs such as baricitinib.
- Second, the draft waiver proposes to waive only patents and not other IP rights.
 - India's original stand was that all IP rights, not just patents, be waived. The accessibility of COVID-19 medical products can be held up due to many IP rights like trade secrets.
- Third, even on the issue of patents, the draft waiver appears to be old wine in a new bottle.
 - For instance, the draft waiver allows countries to limit the exclusive rights conferred on patent holders under Article 28.1 of the TRIPS agreement through the use of Article 31, which permits the issuance of compulsory licenses.
 - But this flexibility is already available under the TRIPS agreement. The only waiver is from Article 31(f) which requires countries to ensure that products produced under a compulsory license are predominantly for the domestic market.
 - The draft waiver allows countries to export any proportion of vaccines to eligible countries. However, this waiver is subject to several notification requirements. Eligible members are obligated to prevent re-exportation of COVID-19 vaccines that they have imported.
 - Furthermore, the eligible countries which issue a compulsory license for COVID-19 vaccines have to notify the WTO about the entity that has been authorised to produce the product, the quantities, duration, and the list of countries to which the vaccines are being exported.
 - All these procedural requirements will increase the transaction costs and may deter countries from using the system. Not just this, the waiver adds a new TRIPS-plus obligation. Article 31(a) of the TRIPS agreement requires that permission for compulsory licenses shall be considered on a product-by-product basis.
 - Concerning Article 31(a), the draft waiver clarifies that a single authorisation may be given to use the subject matter of multiple patents necessary for the production and supply of COVID-19 medicines. However, this entails a new obligation to identify and list all covered patents.

- Fourth, the draft waiver is not universal. Only those developing countries that exported less than 10% of world exports of COVID-19 vaccine doses in 2021 are covered for exportation and importation. There is no mention of least developed countries.
- Fifth, while the draft waives the obligation of a member to protect undisclosed information submitted before a drug regulator to claim marketing approval in the present context, it is silent on overcoming the challenges posed by protection to other trade secrets covered under Article 39.1 and 39.2 of TRIPS.

History repeats itself

- In the aftermath of the HIV/AIDS crisis in Africa, the WTO adopted a decision in 2003 waiving certain TRIPS obligations to increase the accessibility of medicines in countries that lacked manufacturing capability.
- However, this waiver was subject to stringent requirements because of which hardly any country made effective use of this waiver.
- The developed countries serving the interests of their pharmaceutical firms are all set to triumph, once again, over the public health concerns of humanity.
- This will further dent the WTO's relevance and credibility. India has surrendered and will end up being on the wrong side of history.
- It is incumbent on the government to explain why it has accepted a strikingly withered-down version of the TRIPS waiver.

The Startup India initiative

(Source: [The Hindu](#))

Context: Minister for Commerce and Industry Piyush Goyal stated that the Startup India portal had more than 65,000 startups registered. Of these, 40 attained the 'unicorn' status in the last twelve months, bringing the total as of date to 90. He noted that India now ranked third among global startup eco-systems. However, entrepreneurship continues to be "highly concentrated" in three megacities, namely, Mumbai, Bengaluru and Delhi NCR. Such concentration can lead to increased economic inequality and hinder emergence of entrepreneurs from other regional clusters.

Details:

- The Startup India Action Plan document has no mention of the words 'caste', 'tribe', 'marginalised', 'indigenous' or 'social group'.
- This contradicts the initiative's very notion of making entrepreneurship in India inclusive. The under-representation could be due to multiple factors such as caste-based economic exclusion, the urban and rural divide, lack of access to quality education and limited social networks.
- Anish Tiwari, Colm O'Gorman and Teresa Hogan, 'The good, the bad, and the ugly of 'Startup India' — a review of India's entrepreneurship policy', Economic & Political Weekly (EPW), Vol (50), 2021.

Recognised startups under Startup India

| HIGHEST | | LOWEST | |
|---------------|------|-------------------|---|
| Maharashtra | 8353 | Meghalaya | 9 |
| Karnataka | 5999 | Arunachal Pradesh | 4 |
| Delhi | 5587 | Mizoram | 4 |
| Uttar Pradesh | 3880 | Sikkim | 4 |
| Gujarat | 2622 | Ladakh | 1 |
| | | Lakshadweep | 1 |

SOURCE: ANNEXURE-I OF MINISTER OF STATE FOR COMMERCE & INDUSTRY SOM PRAKASH'S WRITTEN REPLY TABLED IN RAJYA SABHA ON MARCH 19, 2021.



- A research paper from Dublin City University in Ireland, reviewing India's entrepreneurial policy Startup India, affirmed its positive impact in reducing regional entrepreneurial disparities. However, it cited shortcomings in addressing the under-representation of women and marginalised caste groups in the national startup ecosystem.
- The paper was published in the Economic and Political Weekly in December 2021. Startup India was introduced in 2016 as a "clarion call to innovators, entrepreneurs, and thinkers of the nation to lead from the front in driving India's sustainable growth and create large scale employment opportunities."
- Minister for Commerce and Industry Piyush Goyal informed the Lok Sabha the other week that the entrepreneurial portal had more than 65,000 startups registered. Of which, 40 attained the 'unicorn' status in the last twelve months, bringing the total as of date to 90. He stated that India ranked third among global startup eco-systems.

Addressing regional entrepreneurial disparities

- The evidence collated by authors of the research paper suggested that the networking, training and mentoring facilities provided by Startup India alongside entrepreneurship outreach campaigns in tier-2 and tier-3 cities, helped address regional entrepreneurial disparities in India.
- The program was aimed at scouting entrepreneurs from these cities and integrate them into the portal. It would then facilitate a network between venture capital funds, angel networks, banks, incubators, accelerators, universities, legal partners, consultants and research & development institutions.
- The paper states the initiative helped redirect many State govts' policymaking in favour of startups. Quoting from Startup India's Report (2018), the researchers mention, only four States had dedicated startup policies prior to its launch. After its launch and as of December 2019, 23 States and two Union Territories had formulated a dedicated startup policy.

Heavy concentration in megacities

- Despite the initiative, the researchers pointed out that entrepreneurship continued to be "highly concentrated" in three megacities, namely, Mumbai, Bengaluru and Delhi NCR. The three cities accounted for 93% of all funding raised between 2014 and 2019. The paper pointed out that India's venture capital industry is also clustered in and around these three cities.
- The same notion was established by the Reserve Bank of India (RBI) in its Pilot Survey on the Indian Startup Sector (2019). The research involving 1,246 participants stated nearly three-fourths of the participants were from Karnataka, Maharashtra, Telangana, Delhi and Tamil Nadu.
- Quoting from recent studies, the researchers stated that such concentration can lead to increased economic inequality and hinder emergence of entrepreneurs from industries other than those belonging to the clusters.
- The spurt of industries (in this case, startups) create employment opportunities, this furthers a demand for leisure and essential amenities among the populace. In turn, this furthers employment, economic activity and efficiency. However, this takes place at the expense of another area having previously failed to enable a suitable supportive ecosystem.
- According to results computed by the researchers in the paper, 30% of all States and Union Territories in India have an equal or higher proportionate share in the Dept for Promotion of Industry and Internal Trade's (DPIIT) recognised start-up pool in relation to their share in the country population.

Ensuring representation

- The researchers point out that the 40-page Startup India Action Plan document has no mention of the words 'caste', 'tribe', 'marginalised', 'indigenous' or 'social group'.
- According to them, this contradicts the initiative's very notion of making entrepreneurship in India inclusive. The under-representation could be due to multiple factors, the paper states, such as caste-based economic exclusion, the urban and rural divide, lack of access to quality education and limited social networks.



- Additionally, the policy's reliance on technology does not take into consideration India's digital divide, especially with respect to urban and rural areas.
- With reference to government data from 2013, the paper concluded that SC and ST share in ownership of agricultural establishments including farming, livestock, fishery and forestry were higher in comparison to non-agricultural establishments. They were based majorly in rural areas in comparison to urban areas.
- Most of them operated without any hired workers, indicating that a significant number of these enterprises were necessity-based undertakings not creating any significant job opportunities. According to economist Thorsten Beck, necessity-based or subsistence entrepreneurship refer to businesses that are run informally and through self-employment.
- A large number of these are set up owing to lack of employment opportunities in the formal sector. "The evidence thus suggests the need for targeted measures to promote technology-and innovation-driven entrepreneurship among SC and ST communities. However, the Startup India policy document in its present form does not address this issue," the paper noted.

Women in the industry

- In February, the Minister of State for Commerce & Industry Som Prakash, in response to a question on women entrepreneurship under Startup India, had informed that of 62,000 startups registered with the DPIIT, 46% of them had at least one woman director.
- RBI's pilot survey had earlier stated that 5.9% of participating startups in its survey had a female founder in comparison to 55.5% of the opposite gender. The remaining 38.6% had both male and female co-founders.
- Mr Som had also apprised the house of dedicated measures taken to spurt women entrepreneurship. 10% of the fund in the Fund of Funds operated by Small Industries Development Bank of India (SIDBI) has been reserved for women-led startups.
- Further, all the alternate investment funds where the SIDBI takes equity have been mandated to contribute 20% in business which are women led, women influenced and women employment or women consumption centric.
- He also informed the house about capacity building programmes and the dedicated webpage for women on the portal. As per the established arrangement, the DPIIT allocates funds to SIDBI, which in turn invests the money in alternative investment firms (AIFs).
- The latter would then raise matching funds, and post fundraising, invest the money and disburse to startups, the paper informs. This is done to avoid any potential accusation of 'favouritism'.

India's food response as 'Vasudhaiva Kutumbakam'

(Source: <https://epaper.thehindu.com/Home/ArticleView>)

Context: *Global hunger is on the rise, driven by the climate crisis, the COVID-19 pandemic shocks, conflicts, poverty, and inequality. Millions are living in hunger and many more do not have access to adequate food. More people are living in hunger than in 2015 when the member states of the United Nations, including India, agreed to Sustainable Development Goals (SDGs) that provide a shared blueprint for peace and prosperity for people and the planet, now and into the future.*

In 2019, 650 million people around the world suffered from chronic hunger — 43 million more than in 2014. Since the onset of the pandemic, the number of people on the brink of starvation has doubled from 135 million people, pre-COVID, a year ago to 270 million.

India's outreach

- The title invokes the concept of Vasudhaiva Kutumbakam, ‘Earth is One Family’, from India’s traditional philosophical outlook that has gained huge relevance over the past 75 years since being cited in the United Nations General Assembly (UNGA) to underline the collective nature of the crises and a matching response that is needed.
- At the core of the concept is ‘Vasudha’, which means the planet earth, and describes how different nations form one collective and cannot escape the common connection of concern and humanity.
- In his 2014 UN General Assembly address, Prime Minister Narendra Modi said, “India’s traditional outlook sees the world as one family and that is linked to its Vedic tradition of Vasudhaiva Kutumbakam” — underlining its relevance not just for global peace, cooperation, environment protection but also for humanitarian response including rising global hunger and leaving no one behind.
- The number of people in need of urgent food assistance — estimated at 270 million in 2021 — because of the pandemic will grow significantly with the crisis in Afghanistan and the ongoing war in Ukraine. The fallout of the war is driving food and fuel prices that will add to the burden to the millions (especially the poor and marginalised) who are struggling.
- Sadly, the global burden of malnutrition remains enormous, with almost 150 million children stunted, nearly 50 million wasted, and every other child — as well as two billion adults — suffering from micronutrient deficiencies.

Helping Afghanistan

- India’s recent and ongoing humanitarian food assistance to the people of Afghanistan, through the United Nations Food Programme (where half of the population needs urgent food assistance to avert a famine) is an example of its commitment and commendable steps towards humanitarian crises.
- The 50,000 Metric Tonnes (MT) of food assistance in the form of wheat committed by India is being sent in instalments to Jalalabad, Afghanistan, through Pakistan. The first consignment, part of India’s in-kind contribution to the United Nations World Food Programme (WFP), was flagged-off on February 22 in a ceremony at Amritsar’s Attari border crossing, by India’s Foreign Secretary Harsh Vardhan Shringla and Afghanistan’s Ambassador to India Farid Mamundzay.
- It is important to put this assistance in the context of the need in Afghanistan. Over 22.8 million people — half of the population — are projected to be acutely food insecure in 2022; this includes 8.7 million at risk of famine-like conditions. Nearly 4.7 million children, pregnant and lactating women are at risk of acute malnutrition in 2022. All 34 provinces are facing a crisis or emergency levels of acute food insecurity.
- The WFP in Afghanistan has in place a massive supply chain and logistics infrastructure, with hundreds of trucks and staff ensuring that food assistance reaches those who need it the most and no one is excluded. This makes each contribution and partnership with the Government of India, a lifesaving one for children, women, and men in need.
- India has been a strong ally of the Afghan people, traditionally, and has extended over a million metric tonnes in the past, including 75,000 metric tonnes last year in partnership with the WFP.
- In the past two years, India has provided aid to several countries in Africa and the Middle East/West Asia to overcome natural calamities and the COVID-19 pandemic. I have been a party to India’s support to Yemen and Zimbabwe in the past.

From sufficiency to assistance

- India has made enormous progress in food production over the years, with an inspiring journey towards self-sufficiency in food production, marked by the Green Revolution. In 2020, India produced over 300 million tonnes of cereals and had built up a food stock of 100 million tonnes.
- The country has registered record harvests over the last few years, with several enabling policies and incentives to farmers. In 2021, India exported a record 20 million tonnes of rice and wheat.
- As India’s foodgrain surplus continues to grow, along with its footprint as a key humanitarian food assistance player, underlining its partnership with the WFP, it is also important to highlight the story of its transition from receiving food aid to now providing food aid to those in need.

- The long journey from chronic food shortage to surplus food producer offers several valuable lessons for other developing countries in Asia, Africa, and Latin America in land reforms, public investments, institutional infrastructure, new regulatory systems, public support, and intervention in agri markets and prices and agri research.

Safety nets

- One of India's greatest contributions to equity in food is its National Food Security Act (NFSA) 2013 that anchors the Targeted Public Distribution System (TPDS), the Mid-Day meals (MDM), and the Integrated Child Development Services (ICDS). Today, India's food safety nets collectively reach over a billion people.
- Food safety nets and inclusion are linked with public procurement and buffer stock policy. This was visible during the global food crises of 2008-2012, and more recently during the COVID-19 pandemic fallout, whereby vulnerable and marginalised families in India continued to be buffered by TPDS which became a lifeline with a robust stock of food grains.
- The Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) introduced in 2020 to provide relief to 800 million beneficiaries covered under the NFSA from COVID-19 induced economic hardships has been extended by another six months up to September 2022. The total PMGKAY outlay so far adds up to ₹2.6 trillion.
- India's support to its neighbours and other countries that struggle with food emergencies and food insecurity must continue its growth trajectory.
- For instance, in Afghanistan itself the need is immense. Over half of all Afghan people — 23 million — now need emergency food assistance. The latest WFP food security data show that 95% of Afghans consume insufficient food, with the number rising to almost 100% among households headed by women. Two-thirds — 66% — are resorting to desperate coping measures such as borrowing money or skipping meals to feed their families, a six-fold increase since August last year.
- Humanitarian food assistance and partnerships that help create robust policy innovations by way of food safety nets and resilient livelihoods, will contribute towards global peace.
- It is not just important to respond to the hunger and the food security needs of communities affected by conflicts but also to consider addressing them as a global community to avoid human suffering and the massive humanitarian assistance needs that it creates.

A peace catalyst

- Research undertaken by the Stockholm International Peace Research Institute (SIPRI) points to WFP programmes contributing to creating conditions for peace in four areas including 'bolstering social cohesion, strengthening the link between citizen and state, and resolving grievances within and between communities'.
- The Nobel Peace Prize to the WFP in 2020 cited the WFP's role and the importance of access to food in maintaining peace.
- India has made major progress in addressing hunger and malnutrition, but a lot needs to be done and we must continue this path as the trailblazer in access and inclusion through public policies and systems. For over five decades the WFP has been partnering with India and seen its transition from being a recipient to a donor.
- However, we must take note of the fact that India can do more and is doing more on delivering the goal of Zero Hunger and equity globally.
- As the world's largest humanitarian agency, the WFP, and India, as the largest democracy, can leverage this partnership to contribute to addressing food emergencies and strengthening humanitarian response, embodying the spirit of 'leave no one behind' and Vasudhaiva Kutumbakam.

Current Affairs Quiz

1) Consider the following statements:

1. T-Cells originate in the thymus and mature in the bone marrow.
2. T-cells connect only to the virus antigen on the outside.
3. T-cells are responsible for humoral immunity.

Which of the above statements is/are correct?

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

Answer : b

They are responsible for removing the pathogens from the body.

They are responsible for removing the pathogens from the body.

As soon as the foreign antigen enters the cells, T cells trigger the B cells to develop plasma cells and activates T killer cells that kill the cells affected by the invaders.

They connect only to the virus antigen on the outside.

2) Consider the following statements regarding the Medium Range Surface to Air Missile (MRSAM):

1. It is jointly developed by DRDO and Israel Aerospace Industries (IAI).
2. The MRSAM is developed for the Army, the Navy and the Air Force with different variants.
3. The missile can move at a maximum speed of twice the speed of sound.

Which of the statements is/are correct?

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

Answer : d

3) Consider the following statements regarding Artemis Accord:

1. It ensures that space exploration is conducted in a safe, sustainable and transparent manner, in compliance with international law.
2. Signing the accord, gives the signatories the authority to carry out exploration in the lunar South Pole.
3. India is a signatory to the Artemis accord, however, it is yet to ratify the accord.

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

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

Answer : b

4) Consider the following statements:

1. The GSLV Mark II is capable of launching satellites only in the low earth orbits, while the GSLV Mark III can launch them in geosynchronous transfer orbits.
2. The GSLV Mark II has functions on solid fuel, while the GSLV Mark III functions on liquid fuel.

Which of the above statements is/are correct?

- a. 1 only
- b. 2 only

- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : d

It can launch satellites both in the low earth orbits and the geosynchronous transfer orbits.

The vehicle has two solid strap-ons, a core liquid booster and a cryogenic upper stage.

5) Consider the following statements regarding the UN Charter:

1. Article 34: The Security Council may investigate any dispute or any situation which may lead to international friction.
2. Article 35: Any member of the UN can bring any dispute referred to in article 34 to the attention of the Security Council only.
3. Article 51: No external forces can inherent the right of a country, in case of an armed attack, until the UNSC has taken the necessary measures.
4. The Kashmir issue between India and Pakistan is reported under Article 51 of the UN Charter.

Which of the above statements is/are correct?

- a. 2 and 4 only
- b. 1 and 3 only
- c. 1, 2 and 3 only
- d. 1, 2, 3 and 4

Answer : b

Article 35: Any Member of the United Nations may bring any dispute, of the nature referred to in Article 34, to the attention of the Security Council or of the General Assembly.

The Kashmir issue is reported under article 35 of the UN Charter Act.

6) Consider the following statements:

1. The scheme for preservation and development of cultural heritage of the Himalayas is carried out by the Ministry of culture in collaboration with the Ministry of human resource development.
2. It is carried out only in the Union Territories of Jammu & Kashmir, Ladakh and States of Himachal Pradesh, Uttarakhand, Sikkim and Arunachal Pradesh.

Which of the above statements is/are correct?

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

Answer : b

It is carried out for the purpose of promoting, protecting and preserving the cultural heritage.

7) Consider the following statements:

1. Seagrass are the only flowering plants which grow in marine environment.
2. Like terrestrial plants, seagrass also photosynthesise and manufacture their own food and release oxygen.
3. They occur all along the coastal areas of India and is abundant in the Palk Strait and Gulf of Mannar.

Which of the above statements is/are correct?

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

Answer : d

8) Consider the following statements regarding the Sahi Fasal Campaign:

1. It was launched by the Ministry of Agriculture and Farmer's Welfare.
2. The campaign aims to nudge the farmers in water stressed areas to grow less water intensive crops.

3. It is funded by the State Governments, since water is a state subject.

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

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

Answer : c

It was launched by National Water Mission, Ministry of Jal Shakti in 2019 to nudge the farmers in the water stressed areas to grow less water intensive, economically remunerative and environmentally friendly crops.

9) Consider the following statements regarding the Crime and Criminal Tracking Network System (CCTNS):

- 1. It was conceptualized and is implemented as Mission Mode project by the Ministry of Home Affairs.
- 2. Like CBI, CCTNS needs to get prior permission of the state government to access the crime and criminal records.
- 3. One of the objectives of CCTNS is the computerization of the police processes.

Which of the above statements is/are correct?

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

Answer : b

The scope of CCTNS spans all States and UTs and covers all Police Stations and all Higher Police Offices in the country.

10) Consider the following statements regarding the City of Literature tag:

- 1. It comes under the aegis of the UNICEF's creative cities network initiative.
- 2. In India, no city has been given the city of literature tag.
- 3. Edinburgh was the first city of literature in network of creative cities.

Which of the above statements is/are correct?

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

Answer : b

Comes under the aegis of UNESCO's creative cities network.

11) Consider the following statements regarding UNESCO's tentative heritage list:

- 1. It is mandatory to place a monument on the tentative list for one year, before it is considered for the final nominations.
- 2. It is mandatory for member states to include the selected site in their own tentative list.
- 3. Meghalaya root bridges and the river island of Majuli are the only two sites in the tentative heritage list of North East India.

Which of the above statements is/are correct?

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

Answer : a

The tentative list in north east India includes: Apatani cultural landscape of Arunachal Pradesh, Garo hills conservation area of Meghalaya, Jingkieng jri, living root bridges, among others.

12) Consider the following statements regarding Walker Circulation:

1. It is caused by the low pressure system over the western Pacific Ocean, and a high pressure system over Indonesia.
2. It depicts the model of the air flow in the stratosphere, over the oceans, caused by differences in heat distribution.
3. During El Nino years, Walker circulations gets weakened or gets reversed.

Which of the above statements is/are incorrect?

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

Answer : a

The Walker circulation is caused by the pressure gradient force that results from a high pressure system over the eastern Pacific Ocean, and a low pressure system over Indonesia.

It is a conceptual model of the air flow in the tropics in the lower atmosphere, troposphere.

13) Consider the following statements regarding the West African Monsoon (WAM):

1. The West African monsoon is the alternation of the south westerly wind and the harmattan at the surface.
2. Intensification of West African Monsoon (WAM) leads to lower rainfall over the western Indian Ocean and higher rainfall over the Amazon.

Which of the above statements is/are correct?

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

Answer : a

Intensification of WAM leads to higher rainfall over the western Indian Ocean and lower rainfall over the Amazon.

14) Consider the following statements regarding Coral Bleaching:

1. Corals experience stress from the environment
2. Corals expel the colour-giving zooxanthellae.
3. Zooxanthellae starts producing reactive oxygen species.
4. End of symbiotic relationship between the two.

Arrange the above statements in the sequence of order of events.

- a. 1-2-3-4
- b. 1-3-2-4
- c. 2-1-3-4
- d. 2-3-1-4

Answer : b

15) Consider the following statements with respect to the dolphin population of Odisha

1. The dolphin population along Odisha's coast and in its water bodies has increased in recent times.
2. The number of Irrawaddy dolphins in Chilika Lake has fallen.

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

16) Sariska Tiger Reserve is located in-

- a. Gujarat
- b. Rajasthan
- c. Maharashtra
- d. Madhya Pradesh

Answer : b

17) Consider the following statements with respect to Hindu Adoptions and Maintenance Act, 1956.

- 1. As per the act, a Hindu does not merely mean a person that follows Hinduism but also includes Virashaiva, Lingayat, or a follower of the Brahmo, Prarthana or Arya Samaj.
- 2. Under the act, an unmarried daughter can claim the expenses of marriage from her parents.

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

18) Consider the following statements with respect to Butterfly tags

- 1. They are a wide band of machine-belted fitted with a small radio transmitter and battery.
- 2. Each tag will have a unique code and it will help track the origins of the tagged butterflies if they are recaptured.

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 : b

Butterfly tags are tiny stickers attached to the underside of one of the hind wings.

19) Consider the following statements with respect to Milkweed Butterflies

- 1. It is believed that they fly from the Western Ghats to the Eastern Ghats before the southwest monsoon.
- 2. The reverse migration happens before the northeast monsoon gains momentum in the Eastern Ghats to avoid heavy rains.

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

20) Consider the following statements with respect to Sea Ice:

- 1. Sea ice is essentially frozen ocean water, unlike icebergs, glaciers and ice shelves that originate on land.
- 2. Sea ice in the Arctic usually reaches its peak in March and the Antarctic sea ice in the south follows the opposite cycle.

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

