

OFFICERS' PULSE

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**AT A GLANCE
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News @ a glance

POLITY

1) Special Category Status

What is it?

- A Special Category Status (SCS) is a classification given by the Centre to **assist in the development of those states that face geographical and socio-economic disadvantages** like hilly terrains, strategic international borders, economic and infrastructural backwardness, and non-viable state finances.

Historical background

- The **Constitution does not have any provision** for categorisation of any state as a Special Category Status State.
- The concept of a special category status was first introduced in **1969** when the **fifth Finance Commission** sought to provide certain disadvantaged states with preferential treatment in the form of central assistance and tax breaks, establishing special development boards, reservation in local government jobs, educational institutions, etc.
- This formula was named after the then Deputy Chairman of the Planning Commission, **Dr Gadgil Mukherjee** and is related to the transfer of assistance to the states by centre under various schemes.

When was the first Special Category status bestowed?

- Initially, three states; Assam, Nagaland and Jammu & Kashmir were granted special status but from 1974-1979, five more states were added under the special category. These include Himachal Pradesh, Manipur, Meghalaya, Sikkim and Tripura.
- In 1990, with the addition of Arunachal Pradesh and Mizoram, the states increased to 10. The state of Uttarakhand was given special category status in 2001.

Who grants special status to states?

- Special category status for plan assistance has been granted in the past by the **National Development Council (NDC)**,

composed of the Prime Minister, Union Ministers, Chief Ministers and members of the planning commission, who guide and review the work of the commission.

- Some of the features required for special status are:
 1. Hilly and difficult terrain
 2. Low population density or sizeable share of tribal population
 3. Strategic location along borders with neighbouring countries
 4. Economic and infrastructural backwardness
 5. Non-viable nature of state finances

Benefits states confer with special category status

- States which are granted special category status enjoy several benefits which includes
 1. The **Centre pays 90 per cent of the funds** required in a centrally-sponsored scheme to special category status category states as against 60 per cent in case of normal category states, while the remaining funds are provided by the state governments.
 2. Preferential treatment in getting central funds.
 3. Concession on excise duty to attract industries to the state.

Discontinuation of the Gadgil formula-based grants

- The 14th Finance Commission stated that there is no distinction between special and general category States in determining norms and recommendations.
- The Centre said that the **concept of Special Category Status has been effectively discontinued since 2015** when the recommendations of the 14th Finance Commission were accepted.

Why in News?

- Andhra Pradesh Chief Minister Y.S. Jagan Mohan Reddy reiterated that the Central government was obliged to grant Special Category Status to Andhra Pradesh as per

the commitment given in Parliament as a precondition to bifurcation.

Why does Andhra Pradesh want to get Special Category Status?

- When Andhra Pradesh was bifurcated in 2014, it sought Special Category Status on the grounds that it was at a disadvantage, since it would lose a significant amount of revenue as a result of Hyderabad going to Telangana, the new state that came into existence on June 2, 2014.
- Andhra Pradesh was **promised Special Category Status by the Congress government**, which was at the Centre during the state bifurcation.
- **Manmohan Singh**, who was then Prime Minister, said in the Rajya Sabha that special category status would be extended to Andhra Pradesh for five years to help put the state on a firmer footing. This oral submission by the then PM has been the basis for Andhra Pradesh's claim to the status.
- BJP, which was in the opposition, also stated that it would extend it to five more years if it formed the government.

Ongoing tussle

- However, the **14th Finance Commission did away with the distinction** between general and special category states since it had taken into account the level of backwardness of states in the proposed transfer of funds to states.
- The idea was that adequate resources would be allocated through tax devolution and grants to address interstate inequalities. The special category status was therefore restricted to the **three hill states** (J&K, Himachal Pradesh and Uttarakhand) and those in the **Northeast**.
- It was also decided that a **revenue deficit grant** would be provided for certain states for which devolution alone would be insufficient. **Andhra** was one of the states that were to be given a revenue deficit grant.
- The Centre had said it was willing to provide the **"monetary equivalent" of a special category state** to Andhra Pradesh but would not be able to grant the "special status" that was restricted only to the north-eastern and three hilly states by the 14th Finance Commission.

- The demand for the special category status for the southern state has been a constant issue ever since the inception of Telangana in 2014.

2) Pradhan Mantri Bhartiya Janaushadhi Pariyojana

About PMBJP

- Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP) is a campaign launched by the **Department of Pharmaceuticals** to **provide quality medicines at affordable prices to the masses**.
- In September 2015, an existing 'Jan Aushadhi Scheme' was revamped as 'Pradhan Mantri Jan Aushadhi Yojana' and in November, 2016, to give further impetus to the scheme, it was again renamed as "Pradhan Mantri Bhartiya Janaushadhi Pariyojana".
- PMBJP stores have been set up to provide **generic drugs**, which are available at lesser prices but are equivalent in quality and efficacy as expensive branded drugs.
- **Bureau of Pharma PSUs of India (BPPI)** is the implementing agency for PMBJP.

Objectives of PMBJP

- Making quality medicines available at affordable prices for all, particularly the poor and disadvantaged, through exclusive outlets **"Jan Aushadhi Kendras"**, to reduce out of pocket expenses in healthcare.
- Create awareness among the public regarding generic medicines.
- Create demand for generic medicines through medical practitioners.
- Create awareness through education and awareness programs that high price need not be synonymous with high quality.

Who can open a Jan Aushadhi Kendras?

- State Governments or any organization / reputed NGOs / Trusts / Private hospitals / Charitable institutions / Doctors / Unemployed pharmacists/ individual entrepreneurs are eligible to apply for new Jan Aushadhi stores.
- The applicants shall have to employ one B Pharma / D Pharma degree holder as Pharmacist in their proposed store.
- They can be set up at any suitable place within Government hospital or Private

hospital premises or anywhere outside the premises.

Why in News?

- Union Minister for Chemicals and Fertilizers D. V. Sadananda Gowda inaugurated a Janaushadhi Kendra in Bengaluru recently.
- Saying that a survey has shown that **15 to 30 per cent of the household income is spent on medicines**, the Minister informed that over one crore people are pushed below the poverty line due to this every year.
- He added that all the government hospitals in the country will have Janaushadhi Kendras that sell affordable generic medicines to the common man.
- He appealed to all the doctors in government hospitals to prescribe generic medicines.
- At present, there are 7,500 Janaushadhi Kendras in the country.

Related Information

What are generic drugs?

- When a company develops a new drug — often after years of research — it applies for a patent, which **prohibits anyone else from making the drug for a fixed period**.
- To recover the cost of research and development, companies usually price their brand- name drugs on the higher side.
- Once the patent expires, other manufacturers duplicate and market their own versions of the drug.

Cost-effectiveness of generic medicines

- Since the manufacture of these generic drugs do not involve a repeat of the extensive clinical trials to prove their safety and efficacy, it **costs less to develop them**. Generic drugs are, therefore, **cheaper**.
- However, because the compounds in the generic versions have the same molecular structure as the brand-name version, they provide the **same clinical benefits** as its brand-name version. The generic drug has the **same “active ingredient”** as the brand-name drug. This ingredient is the one that cures the patient; and other, “inert ingredients”, which give the drug its colour, shape or taste, vary from the brand-name drug to the generics.
- In addition, multiple applications for generic drugs are often approved to market a single product; this creates competition in the marketplace, typically resulting in lower prices. **Typically results in prices about 85% less than the brand-name.**

About BPPI

- The Bureau of Pharma PSUs of India comprising all the Pharma CPSUs under the Department of Pharmaceuticals was established in 2008.
- It aims to bring about effective collaboration and cooperation in furthering the working and resources of these organizations.

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ENVIRONMENT

1) Black Storks sighted in Sigur Plateau

About Black Storks



- They are found in many continents but largely **migrate to India and South Africa during winter** in the northern hemisphere.
- They settle in old quiet forests where the nest is placed on a big tree, often near an open space (slopes, clear forests), which allows them easy access. Their hunting field consists of streams and small rivers, of marshy ponds and of meadows with low vegetation.
- Much of their threat is due to habitat destruction and some hunting.
- The IUCN Red List has classified Black Storks as **Least Concern**. But their population is decreasing, mostly due to deforestation and destruction of habitat. Black storks have also been hunted. During migration, many storks die during collisions with power lines.

Sigur Plateau

- The Sigur Plateau is located in the northern part of the Nilgiris district, **Tamil Nadu**, with the **Moyar Gorge** separating the plateau from the Mysore region.
- The Sigur plateau is a low rainfall marginal land with poor soils and till recent times, also had a low population density.

Why in the news?

- Black Storks have been sighted in the Sigur Plateau of Nilgiris.
- The researchers said that sightings of the black stork in this region was extremely rare.

2) Leopard population tracking gets new approach

Indian Leopard

- The Indian Leopard has larger rosettes (black spots) than the other subspecies, with a paler coat in desert habitats, greyer in colder climes and more ochre in rainforest habitats.
- They are sexually dimorphic, with males larger and heavier than females.
- They are solitary predators who remain well-camouflaged at night but come down from trees to hunt during the day. They usually drag their kill up to the trees.
- IUCN assessment groups all leopard subspecies together as **Vulnerable**, recommends a full assessment of the Indian Leopard population, as there may now be fewer than 10,000 mature individuals.
- The population has been severely affected by poaching for skins and body parts for the illegal wildlife trade.

Why in the news?



- Usually leopards like tigers have unique patterns on their bodies. These leopards are called **rosette leopards**. Since the patterns are unique, it helps to count the number of leopards accurately through camera traps.
- But some leopards are born with **melanism**, which makes skin black. **Melanistic leopards** — commonly called black leopards or **black panthers**, have been difficult to estimate as their rosettes are invisible.
- Scientists from several conservation organisations have devised a new system for leopard calculation. This system is called the **Spatial Mark-Resight (SMR)** model.
- In the SMR models, capture history of the rosette leopards is borrowed and is **applied on the information on the**

melanistic leopards to estimate the entire population size of leopards.

- It helps to assess the population of leopards across a great part of the species range from where population estimates are scant.
- Some scientists suggest that SMR models can be used to calculate other big cats too than conventional camera trapping methods.

3) Wildlife SOS and animal rescue

About Wildlife SOS

- Wildlife SOS is a not-for-profit organisation established in 1995 to protect and conserve India's natural heritage, forest and wildlife wealth.
- They have three key areas of focus:
 - Conservation and protection of wild populations and habitat
 - Rescue of injured and displaced wildlife, and care for captive populations
 - Research to better protect and care for wildlife.

Sloth Bear



- The sloth bear inhabits the **tropical lowland forests of India, Nepal, Bhutan, Sri Lanka and Bangladesh.**
- They have a number of unique adaptations to support their primarily **insectivorous lifestyle.** They have no upper incisors, which allow their long tongue to slip through and suck up insects.
- The sloth bear's conservation status is currently listed as **vulnerable** by the International Union for the Conservation of Nature (IUCN).
- Many human activities threaten the sloth bears' survival. Poaching for the bears' **gallbladder**, which is used in traditional medicine, is a rampant problem. Habitat loss and fragmentation in the Indian subcontinent are also severe threats, as bears become displaced from their forest homes.

- The bears are captured one the communities called **KALANDAR community** (a nomadic community) who tame bears and perform street side-entertainment routines. The bears are chained and mentally and physically tormented.

Why in the news?

- Wildlife SOS has been in the process of rescuing and rehabilitating sloth bears and elephants which are used for entertainment.
- More than 628 Sloth bears used by the Kalandar community have been rescued and in the due process, the NGO has helped the Kalandar community to switch to alternative occupations than dancing bear trade.
- Advanced research, disease management and specialised veterinary care as well as geriatric care is provided to the rescued sloth bears which had experienced physical and emotional abuse.
- Today, over 4,000 Kalandar families, with education and women empowerment, are no longer dependent on illegal wildlife crime. In fact almost 40% of the Wildlife SOS staff comprises members of this community.
- In another segment, this NGO is also working to **rescue elephants** used for begging, in circuses, processions and weddings, for tourism or entertainment.
- India currently has over 3,000 elephants living in captivity. The elephants are subjected to severe physical abuse in the process of taming them.
- The NGO works with the Forest Dept to rescue the elephants and are taken to dedicated elephant hospitals where they are healed physically and emotionally.

4) Fossils of Dickinsonia at Bhimbetka

What is Dickinsonia?

- Dickinsonia is an extinct genus of a basal animal that lived during the late **Ediacaran period** (around 550 million years ago). The fossils are known only in the form of imprints and casts in **sandstone beds.**
- It is the oldest known animal.



About Bhimbetka

- It is a place in **Madhya Pradesh** with enormous amounts of cave paintings dating back to approximately 30,000 years.
- Located in the foothills of the **Vindhya Mountains**, it is one of the **UNESCO cultural heritage sites**.
- The paintings found in the rock shelters here have a striking resemblance to the ones discovered in Kakadu National Park in Australia; to the cave paintings of Bushmen in Kalahari Desert and Upper Palaeolithic Lascaux cave paintings in France.

Why in the news?

- Recently, a group of archaeologists had seen on the roof of what is often referred to as the Auditorium Cave in Bhimbetka an imprint of an over 500 million year old fossil of India's first Dickinsonia.
- If the discovery is confirmed, it will make India home to one of the oldest animal fossils in the world.

5) Leatherback nesting sites could be overrun by Andamans project

About leatherback sea turtles

- Leatherback turtles are named for their shell, which is leather-like rather than hard, like other turtles.
- They are the **largest of the seven species of sea turtles** on the planet and also the most long-ranging,



- Leatherbacks are **found in all oceans except the Arctic and the Antarctic**.
- Within the Indian Ocean, they nest only in **Indonesia, Sri Lanka and the Andaman and Nicobar Islands**.
- Leatherback turtles are among the deepest-diving marine animals and have been recorded diving to depths of over 1000 metres. They are also the fastest moving reptiles and can swim at speeds of up to 35 km per hour.
- It is listed as **Vulnerable** by IUCN and listed in **Schedule I** of India's Wildlife Protection Act, 1972, according it the highest legal protection.

Why in the news?

- Environmentalists are criticizing several mega projects in Andaman and Nicobar islands to promote tourism and infrastructure, as they will be affecting nesting grounds of Giant leatherback turtles
- At least three key nesting beaches — two on Little Andaman Island and one on Great Nicobar Island — are under threat due to mega development plans announced in recent months.
- Little Nicobar Island and Great Nicobar Island constitutes 94 percent of the total nests found in the Nicobar region.
- The scale of the project and the investment proposed indicate it could signal the end of a crucial Giant Leatherback nesting site.

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ECONOMY

1) Production Linked Incentive (PLI) scheme

About the scheme

- In April last year, the central government had for the first time notified the Production Linked Incentive (PLI) scheme for **mobile phones and allied component manufacturing**.
- As a part of the scheme, companies which set up new mobile and specified equipment manufacturing units or expanded their present units would get **incentives of 4 to 6 per cent**, after they achieve their investment and production value target for each year. These incentives will be offered for a period of 5 years.
- In November, the PLI scheme was **expanded to include 12 more sectors** such as automobile and automobile components, pharmaceutical drugs, textile products, food products, high efficiency solar photo-voltaic modules, white goods such as air conditioners and LED bulbs, and speciality steel products.
- Finance Minister Nirmala Sitharaman had in her Budget for 2021-22 said the total outlay on PLI schemes in these 13 sectors over the next five years would be Rs 1.97 lakh crore.

Why in News?

- The Union Cabinet has approved a Rs 12,195-crore Production Linked Incentive scheme for **domestic manufacturing of telecom and networking products** such as switches, routers, radio access network, wireless equipment and other internet of things (IoT) access devices.

Significance

- The core component of this scheme is to **offset the huge import of telecom equipment** worth more than Rs 50,000 crore and reinforce it with 'Made in India' products, both for domestic markets and exports.
- Currently, India imports over 80 per cent of its telecom and wireless networking equipment.
- With the inclusion of telecom equipment manufacturing under the ambit of PLI

schemes, the total number of sectors under such programmes stands at 13.

- All the sectors included under the various PLI schemes are mostly **labour intensive** and aim to **attract global manufacturing giants into the Indian manufacturing space**.
- All the sectors chosen under PLI schemes are also a part of the government's plan to present **India as an alternative destination to China** for setting up manufacturing hubs.

2) World Trade Organization

About WTO

- The World Trade Organization (WTO) is an intergovernmental organization that is concerned with the regulation of international trade between nations.
- The WTO officially commenced on 1 January 1995 under the **Marrakesh Agreement**, signed by 123 nations on 15 April 1994, replacing the **General Agreement on Tariffs and Trade (GATT)**, which commenced in 1948.
- It is the largest international economic organization in the world.
- The WTO deals with regulation of **trade in goods, services and intellectual property** between participating countries by providing a framework for negotiating trade agreements and a dispute resolution process aimed at enforcing participants' adherence to WTO agreements, which are signed by representatives of member governments ratified by their parliaments.
- The primary purpose of the WTO is to **open trade for the benefit of all**.
- The WTO prohibits discrimination between trading partners, but provides exceptions for environmental protection, national security, and other important goals.
- At present, The WTO has over 160 members representing 98 per cent of world trade.

- **India** has been a WTO member since 1 January 1995 and a member of GATT since 8 July 1948.
- **Ministerial Conference**
- The topmost decision-making body of the WTO is the Ministerial Conference, which usually meets **every two years**.
- It brings together all members of the WTO, all of which are countries or customs unions.

- The Ministerial Conference can take decisions on all matters under any of the multilateral trade agreements.

Why in News?

- Nigerian economist Ngozi Okonjo-Iweala became the first woman and first African to be appointed as the head of the World Trade Organization.

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INTERNATIONAL RELATIONS

1) Quad

Quad grouping

- The grouping of four democracies– **India, Australia, US and Japan** –known as the **quadrilateral security dialogue or quad**, was first mooted by Japanese Prime Minister Shinzo Abe in 2007. Quad was revived in 2017.
- Quad is projected as four democracies with a shared commitment towards a free, open, prosperous and inclusive Indo-Pacific region based on shared values and principles and respect for international law.
- With growing concerns in all four quad countries about **Chinese foreign policy and regional influence**, the group has found renewed relevance.

Why in News?

- India recently joined Australia, Japan and the United States for a ministerial meeting under the quadrilateral grouping.

2) PM moots special visa scheme for medical staff

What's in the news?

- India has mooted an ambitious regional cooperation plan for seamless movement of doctors, nurses and air ambulances **between countries of SAARC and Indian Ocean Region** during medical emergencies noting that greater integration was critical to making the 21st century an Asian century.
- Addressing a workshop on 'COVID-19 Management: Experience, Good Practices and Way Forward' with nine neighbouring nations, Prime Minister Narendra Modi asked experts to consider creating a special visa scheme for doctors and nurses so that they can travel quickly within the region during health emergencies, on the request of the receiving country.
- The workshop was an extension of a similar effort PM Modi made in March 2020 when he addressed a **SAARC gathering** and mooted a regional **COVID response fund making an initial contribution of USD 10 million**.

Related Information

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About SAARC

- The South Asian Association for Regional Cooperation (SAARC) was established in 1985 with 7 founding members.
- SAARC now comprises eight Member States: **Afghanistan** (joined in 2007), **Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka**.
- The Secretariat of the Association is located in **Kathmandu, Nepal**.
- The objectives of the Association include promotion of welfare of the peoples of South Asia and to improve their quality of life; to accelerate economic growth, social progress and cultural development in the region and to provide all individuals the opportunity to live in dignity and to realize their full potential.
- Decisions at all levels are to be taken on the **basis of unanimity**; and bilateral and contentious issues are excluded from the deliberations of the Association.

SAARC COVID-19 emergency fund

- The SAARC COVID-19 emergency fund was proposed by India in March 2020 when Mr. Modi had convened a virtual conference.
- **India had pledged US \$10 million** to start the fund, the others, including Pakistan committed about \$9.8 million together, and the SAARC secretariat committed \$5 million to the fund.
- Thus far, India has sent medical equipment worth US\$ 1 million to Nepal, Bhutan, Bangladesh and Maldives as a part of its contribution.

3) United Nations Peacekeeping Forces

About UN Peacekeeping Forces

- The United Nations Peacekeeping Forces are employed by the UN to maintain or re-establish peace in an area of armed conflict.
- The UN may engage in conflicts between states as well as in struggles within states. The UN acts as an impartial third party in order to prepare the ground for a settlement of the issues that have provoked armed conflict.

- The UN Peacekeeping Forces may **only be employed when both parties to a conflict accept their presence**.
- The Peacekeeping Forces are subordinate to the leadership of the United Nations. They are normally deployed as a consequence of a **UN Security Council** decision. However, on occasion, the initiative has been taken by the **General Assembly**.
- Operational control belongs to the **Secretary-General and his secretariat**.

Two kinds

- There are two kinds of peacekeeping operations – **unarmed observer groups** and **lightly-armed military forces**. The latter are only allowed to employ their weapons for self-defence.
- The observer groups are concerned with gathering information for the UN about actual conditions prevailing in an area.
- The military forces are entrusted with more extended tasks, such as keeping the parties to a conflict apart and maintaining order in an area.
- The first UN peacekeeping mission was a team of observers deployed to the Middle East in 1948, during the **1948 Arab-Israeli War**.

Why in News?

- External Affairs Minister S. Jaishankar announced that India would gift 2,00,000 doses of vaccine to the U.N. Peacekeeping Forces.
- The Minister said India had already sent vaccines to 25 countries under its **Vaccine Maitri programme** and that 49 more countries would be supplied in the coming days.

Contribution of India

- India has consistently been **among the top troop contributing nations to the U.N.**
- The country has so far participated in 51 of the 71 missions and contributed over 2 lakh personnel.

4) WHO

About WHO

- The World Health Organization is a **specialized agency** of the United Nations (UN) established in 1948 to further international cooperation for improved public health conditions.
- It is headquartered in Geneva, Switzerland.
- Working with 194 Member States (including **India**), its stated goal is to ensure "**the highest attainable level of health for all people**".

Where does WHO get its funding from?

- It is funded by a large number of countries, philanthropic organisations, United Nations organisations etc.
- **Voluntary donations** from member states contribute 35.41%, **assessed contributions** (dues countries pay in order to be a member of WHO) are 15.66%, **philanthropic organisations** account for 9.33%, **UN organisations** contribute about 8.1%; the rest comes from myriad sources.
- Countries decide how much they pay and may also choose not to.
- The US contributes almost 15% of the WHO's total funding and almost 31% of the member states' donations. India contributes 1% of member states' donations.

Why in News?

- U.S. Secretary of State Antony Blinken announced that the U.S. would pay the World Health Organization \$200 million towards fulfilling its financial obligations as a WHO member.
- The U.S. is the largest funder of the WHO.
- The announcement is significant as former U.S. President Donald Trump had begun the process of withdrawing the U.S. from the WHO, a process stopped by his successor, President Joe Biden.

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SCIENCE AND TECHNOLOGY

1) Russia's unmanned cargo ship

Why in News?

- An unmanned Russian cargo ship docked at the International Space Station.

Cargo Ship Mission

- The Progress MS-16 cargo ship, which blasted off from the Russia-leased Baikonur launch facility in Kazakhstan, has delivered water, propellant and other supplies to the orbiting outpost.

About International Space Station

- A **space station**, also known as an orbital station or an orbital space station, is a **spacecraft capable** of supporting a **human crew** in orbit for an **extended period of time**, and is therefore a type of space habitat.
- As of now, the International Space Station (ISS) is the **only fully functioning space station and largest human-made body in low Earth orbit**.
- The **ISS programme** is a **joint** project between five participating space agencies: **NASA (United States)**, **Roscosmos (Russia)**, **JAXA (Japan)**, **ESA (Europe)**, and **CSA (Canada)** but its ownership and use has been established by intergovernmental treaties and agreements.
- It serves as a **microgravity and space environment research laboratory** in which crew members conduct experiments in biology, human biology, physics, astronomy, meteorology, and other fields.

India's Plan for Space Station

- India is planning to launch **its own space station by 2030** and the project will be an **extension of the Gaganyaan mission**.
- The space station is going to be very small that will be used for carrying out **microgravity experiments and not for space tourism**

2) Siberian mammoths

What is DNA?

- **DNA** is the **self-replicating material** that carries genetic information in living organisms like a blueprint of life.
- **DNA** is the chemical name for the molecule that carries genetic instructions in all

living things. The DNA molecule consists of two strands that wind around one another to form a shape known as a double helix.

Why in News?

- Scientists have recovered the oldest DNA on record, extracting it from the molars of mammoths that roamed northeastern Siberia up to 1.2 million years ago.

About the discovery

- The **oldest** of the three mammoths, discovered near the Krestovka river, was approximately **1.2 million years old**. Another, from near the Adycha river, was approximately 1 to 1.2 million years old. The third, from near the Chukochya river, was roughly 700,000 years old.
 - By way of comparison, human species, **Homo sapiens, first appeared roughly 300,000 years ago**.
 - Most knowledge about prehistoric creatures comes from studying skeletal fossils, but there is a limit to what these can tell about an organism, particularly relating to genetic relationships and traits.
 - **Ancient DNA could shed light** on some **bygone species** but would leave many others unattainable, including the dinosaurs, who went extinct 66 million years ago.
 - When researchers can get **DNA** on a million-year time scale, they can **study the process of speciation** (formation of new species) in a much more detailed way.
 - Morphological **analyses on bones and teeth** usually **only** allow researchers to study a **handful of characteristics** in the fossils, whereas with genomics we are analysing many tens of thousands of characteristics.
- ### Mammoth
- **Mammoth** is a member of an **extinct group of elephants** found as fossils in Pleistocene deposits over every continent except Australia and South America and in early Holocene deposits of North America.
 - The **woolly mammoth coexisted with early humans**, who used its bones and tusks for making art, tools, and dwellings, and hunted the species for food.

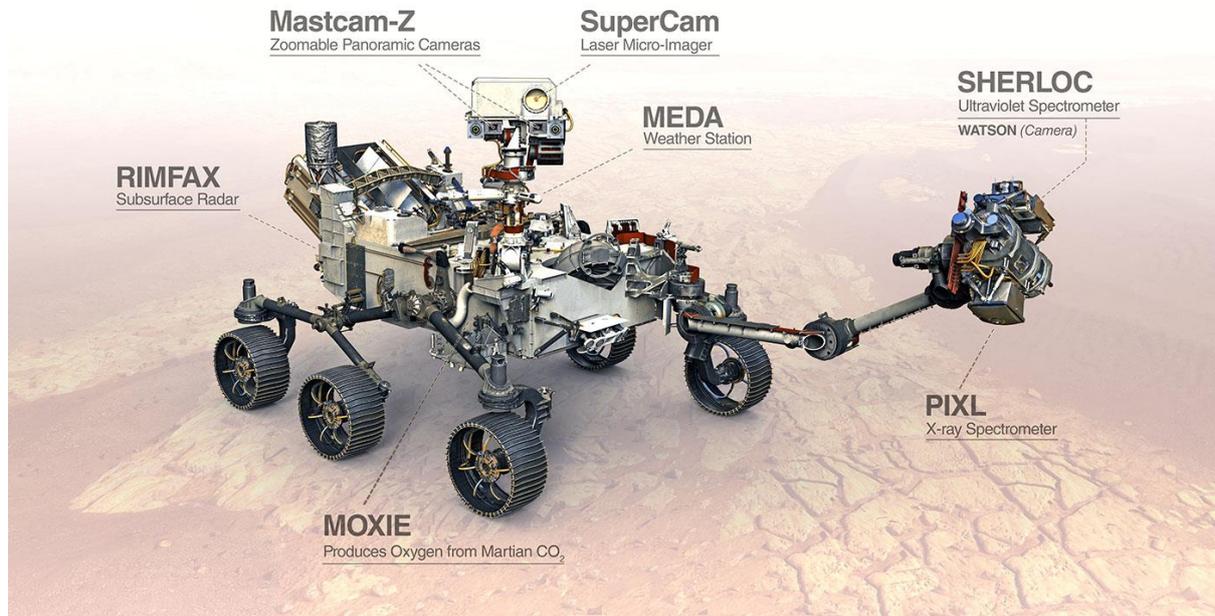
3) Perseverance Rover

Why in News?

- NASA's science rover **Perseverance**, streaked through the Martian atmosphere

and landed safely on the floor of a vast crater.

About the Mission



- The Mars 2020 rover mission is part of **NASA's Mars Exploration Program**, a long-term effort of robotic exploration of the Red Planet.
- The **Perseverance rover** is the centrepiece of NASA's Mars 2020 mission.
- The primary aim is to **search for possible fossilized signs of microbes** that may have flourished on **Mars** some 3 billion years ago, when the fourth planet from the sun was warmer, wetter and potentially hospitable to life.
- Perseverance will explore the **Jezero Crater**, which is an ancient (more than 3 billion years ago) lakebed where **microbial life could have developed**.
- Scientists hope to **find bio-signatures** embedded in samples of ancient sediments that Perseverance is designed to extract from **Martian rock for future analysis** back on Earth - the first such specimens ever collected by humankind from another planet.
- Larger and packed with more instruments than the four Mars rovers preceding it, Perseverance is set to build on previous findings that liquid water once flowed on the Martian surface and that carbon and other minerals altered by water and

considered precursors to the evolution of life were present.

- Two other **NASA landers** are also operating on Mars — 2018's **InSight** and 2012's **Curiosity** rover.

MOXIE

- Perseverance carries a unique instrument, **MOXIE** or Mars Oxygen ISRU Experiment: which for the first time will **manufacture molecular oxygen** on Mars using carbon dioxide from the carbon-dioxide-rich atmosphere.
- ISRU means In Situ Resource Utilization: or the use of local resources to meet human needs or requirements of the spacecraft.
- Without ISRU, exploration of Mars in the future decades will be incredibly expensive and thereby impossible.
- If astronauts have to carry oxygen or water or rocket fuel for their journey for a two-year journey to Mars and back, the cost will be understandably excessive.

Ingenuity Mars Helicopter

- The Ingenuity Mars Helicopter is a technology demonstration, to be carried by the Perseverance rover.
- The rover will release the mini helicopter that will **attempt the first powered flight on another planet**, and test out other

technology to prepare the way for future astronauts.

- The flight will be challenging because **Mars' thin atmosphere** (which is 99% less dense than Earth's) makes it difficult to achieve enough lift.

4) Seismic Noise

What is Seismic Noise?

- In geology **seismic noise** is a generic name for a **relatively persistent vibration** of the ground.
- **Seismometer** is the scientific instrument that **records ground motions**, such as those caused by earthquakes, volcanic eruptions, and explosions.

Why in News?

- **Earth** had its **quietest period in decades** during 2020 as the COVID-19 pandemic significantly reduced human activity and its impact on the planet's crust, according to scientists working on a global study from the Swiss Seismological Service at ETH Zurich.

About the study

- An international group of seismologists from 33 countries measured a drop of up to 50% in so-called ambient noise generated by humans travelling and factories humming after lockdowns came into force around the world.
- **Urban ambient noise fell** by up to **50%** at some measuring stations during the tightest lockdown weeks, as buses and train services were reduced, aircraft grounded and factories shuttered.

How the reduced seismic noise helps?

- Lower background noise during lockdowns also means small earthquakes that otherwise would not be observed have been detected in some places.
- Small tremors allow us to **improve our understanding** of the **seismic hazard**
- It also helps **assess** the **probability** of **larger earthquakes** in the future.

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DEFENCE

1) Arjun Mk-1A tank

Why in News?

- Prime Minister Narendra Modi handed over the indigenous main battle tank Arjun

Mk-1A to the Army in a function at the Jawaharlal Nehru Indoor Stadium in Chennai.

Features of Arjun tank



- The Arjun tanks stand out for their 'Fin Stabilised Armour Piercing Discarding Sabot (FSAPDS)' ammunition and 120-mm calibre rifled gun.
- It also has a **computer-controlled integrated fire control system** with stabilised sighting that works in all lighting conditions.
- The secondary weapons include a co-axial 7.62-mm **machine gun for anti-personnel** and a 12.7-mm **machine gun for anti-aircraft and ground targets**.

How is the Mk-1A different?

- The Mk-1A version has **14 major upgrades** on the earlier version.
- Accurate and fast target acquisition** capability during **day and night** and in all types of weather.
- Shortest possible reaction time** during combat engagements.
- Ability to **accurately engage** targets on move.

- Capability to destroy all possible enemy armour at **maximum battle ranges**.
- It is also **supposed to have missile firing capability as per the design**, but this feature will be added later as final testing of the capability is still on.
- However, the biggest achievement with the latest version is **54.3 percent indigenous** content against the 41 per cent in the earlier model.

2) Pangong Tso

About Pangong Tso

- Pangong Tso is a long narrow, deep, **endorheic** (landlocked) lake situated at a height of more than 14,000 ft in the Ladakh Himalayas.
- The **brackish** water lake freezes over in winter.

Why in News?

- India and China have completed disengagement on the north and south banks of Pangong Tso (lake) in eastern Ladakh.

About the disengagement

- Disengagement was fully complete as per an agreement and had been jointly verified by both sides.
- The other major friction areas between the two countries are **Gogra, Hot Springs and Depsang Plains**.
- With disengagement now complete, a moratorium on patrolling by both sides in the Pangong Tso area has come into effect.
- To ensure that there is no violation of the agreement by China, there is monitoring by unmanned aerial vehicles (UAV) and cameras have been installed at several locations.

Why did the clash happen?

- Last year, Indian and Chinese armies rushed in additional troops in areas

around Pangong Tso lake in eastern Ladakh, after clashes between the soldiers of both sides.

- The Line of Actual Control (LAC) mostly passes on the land, but Pangong Tso is a unique case where it passes through the water as well. The points in the water at which the Indian claim ends and Chinese claim begins are not agreed upon mutually.
- Most of the clashes between the two armies occur in the disputed portion of the lake.

- *About the standoff at Nathu La:*

<https://officerspulse.com/military-standoff/>

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ART & CULTURE

1) Saka Nanakana Sahib

Saka Nanakana Sahib

- **Nankana Sahib**, the **birthplace of first Sikh guru, Guru Nanak Dev**, was also the site of the first big agitation to take back control of gurdwaras from mahants backed by the British.
- The **centenary of Sri Nankana Sahib massacre**, which is popularly known as **Saka Nankana Sahib**, is being marked in an event there on February 21.
- It **started as a gurdwara reform movement** which was aimed at taking possession of historical Sikh Gurdwaras, which had turned into personal property of the priests, who were called **mahants**. These mahants were also accused of

running practices from gurdwaras which were not approved in Sikhism.

- It constitutes the **core of the Gurdwara Reform Movement** started by the Sikhs in the early twentieth century.

Why in News?

- The Union Home Ministry denied permission to 600 Sikh pilgrims intending to visit gurdwaras in Pakistan citing the security and Covid-19 situation in the neighbouring country.
- The procession had applied to go to Pakistan to observe the 100th anniversary of Saka Nanakana Sahib.

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PIB ANALYSIS

1) E- Chhawani

What is it?

- **E-Chhawani portal and mobile app** was launched by the **Ministry of Defence** in New Delhi recently.
- The portal has been created to provide **online civic services** to over 20 lakh **residents of 62 Cantonment Boards** across the country.
- The portal was jointly developed by **eGov Foundation**, Bharat Electronics Limited (**BEL**), Directorate General Defence Estates (**DGDE**) and National Informatics Centre (**NIC**).

Working of the Portal

- Through the portal, the residents of cantonment areas will be able to **avail basic services** like renewal of leases, application for birth & death certificates, water & sewerage connections, trade licences, mobile toilet locators and payment of different types of taxes and fees, with just a click of a button.
- It provides a platform to the residents to avail these services from the comfort of their home.

Significance of the E-Chhawani portal

- E-Chhawani portal is an innovative effort to transform the functioning of Cantonment Boards, in line with the **vision of 'New India'**.
- The portal will **ensure effectiveness and transparency of the services distribution system** of the Cantonment Boards and provide time-bound solutions to the residents.

2) NAG Variants- Helina and Dhruvastra

About Nag Missile

- Nag is a **third-generation, fire-and-forget, anti-tank guided missile** developed by India's state-owned **Defence Research and Development Organisation (DRDO)**.
- The Nag missile has been indigenously developed under the **Indian Ministry of Defence's Integrated Guided Missile Development Programme (IGMDP)**, which also involved the development of

four other missiles that are **Agni, Akash, Trishul and Prithvi**.

- The missile possesses a high single-shot kill probability. It is designed to destroy modern main battle tanks and other heavily armoured targets.
- It has the capability to engage both static and moving targets. It can engage targets under **all weather conditions with day and night capabilities** and with a minimum range of 500m and maximum range of 20 km.
- Nag can be launched from **land and air-based platforms**.
- It uses an imaging infrared seeker in lock-on-before-launch mode.

Nag variants

- **Prospina (500m- 4km)** the land version meant for infantry, can be launched from a tracking-cum-launch vehicle known as NAMICA (Nag Missile Carrier).
- **HeliNa (7- 10km)** is a helicopter-launched version of NAG with an extended range. The launch system is mounted on HAL "Rudra" helicopter using "Rudrastra" twin-launcher system, Dhruv advanced light helicopter (ALH) (a variant called Dhruvastra) and HAL Light Combat Helicopters. The launch system is used by both Indian Army and Air Force.
- **Man Portable Anti-tank Guided Missile (MPATGM):** This version is lighter in comparison to other variants and can be launched from the shoulder. It has a strike range of 2.5 km.

Why in the news?

- Joint User Trials for Helina (Army Version) and Dhruvastra (Air Force Version) variants of the NAG Missile were carried out from Advanced Light Helicopter (ALH) platform in desert ranges.

3) Intensified Mission Indradhanush 3.0

Background

- The Immunization Programme in India was introduced in **1978** as the '**Expanded Programme of Immunization**' (EPI) by the **Ministry of Health and Family Welfare, Government of India**.

- In 1985, the programme was modified as '**Universal Immunization Programme**' (UIP) to be implemented in phased manner to cover all districts in the country by 1989-90 with the one of largest health programmes in the world.
- Despite being operational for many years, UIP has been able to **fully immunize only 65%** children in the first year of their life.
- Under UIP, immunization is providing free of cost against 12 vaccine preventable diseases:
 1. Nationally against 9 diseases - **Diphtheria, Pertussis, Tetanus, Polio, Measles, Rubella, severe form of Childhood Tuberculosis, Hepatitis B and Meningitis & Pneumonia caused by Hemophilus Influenza type B**
 2. Sub-nationally against 3 diseases - **Rotavirus, Pneumococcal Pneumonia and Japanese Encephalitis**; of which Rotavirus vaccine and Pneumococcal Conjugate vaccine are in process of expansion while JE vaccine is provided only in endemic districts.
- A child is said to be fully immunized if the child receives all due vaccines as per national immunization schedule within the 1st year age of child.

Mission Indradhanush

- To strengthen and re-energize the programme and **achieve full immunization coverage** for all children and pregnant women at a rapid pace, the Government of India launched "Mission Indradhanush" in December 2014.
- **Goal of Mission Indradhanush:**
- The ultimate goal of Mission Indradhanush is to ensure full immunization with all available vaccines for **children up to two years of age and pregnant women**.
- The Government has identified 201 high focus districts across 28 states in the country that have the highest number of partially immunized and unimmunized children.
- Earlier the increase in **full immunization coverage** was 1% per year which has **increased to 6.7% per year** through the first two phases of Mission Indradhanush.
- Four phases of Mission Indradhanush have been conducted till August 2017 and more than 2.53 crore children and 68 lakh pregnant women have been vaccinated.

Intensified Mission Indradhanush (IMI)

- To further **intensify the immunization programme**, Prime Minister Narendra Modi launched the Intensified Mission Indradhanush (IMI) on October 8, 2017.
- Through this programme, Government of India aims to reach each and every child up to two years of age and all those pregnant women who have been **left uncovered under the routine immunisation programme/UIP**.
- The focus of the special drive was to improve immunisation coverage in select districts and cities to **ensure full immunisation to more than 90% by December 2018**.
- Under IMI, four consecutive immunization rounds were conducted for 7 days in 173 districts (121 districts and 17 cities in 16 states and 52 districts in 8 northeastern states) every month between October 2017 and January 2018.
- Intensified Mission Indradhanush has covered low performing areas in the selected districts (high priority districts) and urban areas.
- Special attention was given to unserved/low coverage pockets in sub-centre and urban slums with migratory populations.
- The focus was also on the urban settlements and cities identified under the National Urban Health Mission (NUHM).

Intensified Mission Indradhanush (IMI) 2.0

- To boost the routine immunization coverage in the country, Government of India has introduced Intensified Mission Indradhanush 2.0 to **ensure reaching the unreached** with all available vaccines and accelerate the coverage of children and pregnant women in the identified districts and blocks from December 2019-March 2020.
- The IMI 2.0 aims to achieve targets of full immunization coverage in 272 districts in 27 States and at block level (652 blocks) in Uttar Pradesh and Bihar among hard-to-reach and tribal populations.
- With the launch of Intensified Mission Indradhanush 2.0, India has the opportunity to achieve further **reductions in deaths among children under five years of age**, and achieve the Sustainable

Development Goal of ending preventable child deaths by 2030.

- Several ministries, including the Ministry of Women and Child Development, Panchayati Raj, Ministry of Urban Development, Ministry of Youth Affairs and others have come together to make the mission a resounding success and support the central government in ensuring the benefits of vaccines reach the last mile.

Why in the news?

- Union Minister of Health and Family Welfare launched Intensified Mission Indradhanush 3.0 recently.

About Intensified Mission Indradhanush 3.0

- The Intensified Mission Indradhanush 3.0 will have **two rounds** starting from

February 22 and March 22, 2021 and will be conducted in **pre-identified 250 districts/urban areas** across 29 States/UTs in the country.

- Focus of the IMI 3.0 will be the **children and pregnant women who have missed their vaccine doses during the COVID-19 pandemic**.
- They will be identified and vaccinated during the two rounds of IMI 3.0. Each round will be for 15 days each.
- Beneficiaries from **migration areas and hard to reach areas** will be targeted as they may have missed their vaccine doses during COVID19.

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News in Depth

AIR NEWS

1) International Solar Alliance

About ISA

- International Solar Alliance (ISA) was launched in 2015 by Prime Minister Narendra Modi and former President of France Francois Hollande at the 21st session of the United Nations Climate Change Conference of the Parties (COP-21) in Paris, France.
- The **Paris Declaration** that established the ISA states that the countries share the collective ambition to undertake innovative and concerted efforts to reduce the cost of finance and technology for deployment of solar generation assets.
- ISA was conceived as a coalition of **solar-resource-rich countries** (which lie either completely or partly between the Tropic of Cancer and the Tropic of Capricorn) to address their special energy needs.
- More than 60 countries have signed and ratified the ISA Framework Agreement.
- As guided by the Framework Agreement of the ISA, the interests and objectives of the ISA are as follows:
 1. To collectively address key common challenges to scale up solar energy applications in line with their needs;
 2. To mobilize investments of more than **USD 1000 billion by 2030**;
 3. To take coordinated action through programmes and activities launched on a

voluntary basis, aimed at better harmonization, aggregation of demand, risk and resources, for promoting solar finance, solar technologies, innovation, R&D, capacity building etc.;

4. Reduce the cost of finance to increase investments in solar energy in member countries by promoting innovative financial mechanisms and mobilizing finance from Institutions;
5. Facilitate collaborative research and development (R&D) activities in solar energy technologies among member countries.
 - Countries that do not fall between the Tropics can also join the ISA and enjoy all benefits as other members, with the **exception of voting rights**.
 - The Permanent Secretariat of ISA will be located in India at **Gurugram**, the first time that an inter-governmental treaty-based alliance will have its headquarters in India. The Interim Secretariat of the ISA is located at the National Institute of Solar Energy (NISE), Gurugram.

Why in News?

- International Solar Alliance has announced Dr. Ajay Mathur as its new Director General following his election at the first special assembly of ISA members.

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THE HINDU EDITORIALS

1) Redefining the exit plan for COVID19

GS-2 Health

CONTEXT

- An ever-evolving virus and socioeconomic disparities render the goal of elimination infeasible.

COVID- PRESENT, POSSIBILITIES

- After reeling under the onslaught of the COVID-19 pandemic for over a year, the world is now waiting for some respite.
- There has been a reduction in the incidence, severity, and mortality related to COVID-19 locally in some countries, including India, which meets the definition of what is termed as “control”, as per Centers for Disease Control and Prevention (CDC).
- But the end to the pandemic will not be instantaneous. The virus is still evolving to cohabit with humans, and this can include a range of possibilities, from the virus becoming less lethal, more infectious to it becoming virulent.
- Thus, there exists the possibility that the SARS-CoV-2 virus is likely to remain alive and around.

ELIMINATION STRATEGY

- “Elimination Strategy” also known as **zero-COVID-19 strategy** is wherein replication of the virus is reduced to a bare minimum and no new cases occur in a defined geographical area. The strategy has three elements —
1. Rapid reduction in the number of infections to zero,
 2. Creation of virus-free green zones,
 3. Prompt outbreak management when new cases occur occasionally.

CHALLENGES

- Rich countries’ elimination strategy is to vaccinate every citizen in the country. But the plan is **well-suited for geographically isolated countries** that can afford strict border control measures, such as New Zealand.
- Even there, the goal of zero COVID-19 cases is elusive since the virus continues to be in circulation in other countries.

- Firstly, the risk of infection from elsewhere, and thus outbreaks, would always be imminent.
- Secondly, there has to be **universal coverage of vaccines with consistent upgrades**, as the pace of vaccine development may not match the new variants’ emergence.
- Thirdly, a zero-COVID-19 strategy will **worsen global health inequities** by creating green zones of free travel among richer countries, thus alienating poorer nations.

EXPERIENCE WITH OTHER DISEASES

- **Previous experiences with other diseases** like measles and neonatal tetanus shows that, though elimination programmes for them have been ongoing for more than 20 years now, **the goals have not been completely released.**
- Polio, eradicated from southeast Asia, is still endemic in Afghanistan and Pakistan.
- Maternal and neonatal tetanus, which has an 80% to 100% case fatality rate, caused deaths of nearly 25,000 newborns in 2018.
- Despite the global efforts to vaccinate children over the last few decades, these preventable diseases still remain major public health challenges in the developing world.

FEAR OF EPIDEMIC

- So far, there is no empirical evidence to show elimination of the SARS-CoV-2 virus is feasible in the near term. Immunologists opine that the virus will become **endemic**, i.e., some regions will see a constant presence of COVID-19.
- **The level of endemicity depends on how the world reduces inequities of all kinds**, including access to vaccines, and how well public health measures, such as containment, are followed.

WAY FORWARD

Pursuing Universal Health Coverage

- The pandemic has reversed the gains made in programmes like tuberculosis control, caused economic hardships, worsened inequalities, and pushed the poor towards the brink of catastrophe.

- The focused efforts against COVID-19 must not ruin the progress made in other disease control programmes and our commitment to Sustainable Development Goals (SDGs).
- It is also essential to resume pursuing the agenda of **Universal Health Coverage (UHC)**.

Combined Global Efforts

- As long as disease control is neglected in even a few parts of the world, every other part is at risk of importing infections due to free travel.
- Instead of isolated strategies for a few countries, there is the **need of global leadership and resources** to vaccinate the vulnerable population and strengthen epidemiological and genomic surveillance for COVID-19.

RECALIBRATED STRATEGY

- Global elimination of COVID-19 in the immediate term is a huge task.
- The zero-COVID-19 strategy seeks luxury that few countries can afford, and does not reflect field realities.
- Such a plan if adopted may result in diverting most of our attention, funds, and time.
- **Excessive focus on one virus in select countries will only worsen the poor global preparedness to fight other pandemics** in the future or tackle the devastating burden of non-communicable diseases.
- For global health, every idea must be assessed based on its merit while ensuring that there is maximisation of benefits for people across the world. At this stage of the pandemic, the goal of elimination will divert focus and steer the world in a different direction altogether. A **pragmatic goal of controlling COVID-19**, not elimination, combined with a renewed emphasis on UHC can restore and rejuvenate an ailing healthcare system and bolster our progress towards realistic goals.

2) The pressing need to adjudicate, not mediate

GS-2 Judiciary
NEWS

- The recent judgment of the Supreme Court (SC) that refused to review its earlier verdict on the Shaheen Bagh protest is inseparable from its political context.

CONTEXT

- The verdict of October 7, 2020 declared that there is **no absolute right to protest**, and it could be subjected to the orders of the authority regarding the place and time. This judgement of SC can possibly lead to a discourse on the moral authority of the top court in dealing with such fundamental questions related to freedom apart from thinking about the legal and constitutional issues.

PROBLEMATIC BALANCING

- The agitation of Shaheen Bagh protest on the street became an imperative because the **issues were not subjected to a timely judicial examination**.
- And when it was examined, the SC could not exercise its constitutional role and ensure judicial scrutiny on an aggrandizing executive and an equally imposing Parliament by exercising its counter-majoritarian function.
- In the original judgment on Shaheen Bagh, the Court attempted to “mediate” the issue and admitted in the judgment that it “did not produce any solution”.

PREVIOUS JUDGEMENTS OVERLOOKED

- In the 2020 verdict, the Supreme Court has failed to properly appreciate and contextualize the earlier Constitution Bench judgment in **Himat Lal K. Shah vs Commissioner of Police (1972)** even after referring to it.
- In Himat Lal K. Shah, the Court said that the rule framed by the Ahmedabad Police Commissioner conferred arbitrary power on the police officers in the matter of public meetings and, therefore, was **liable to be struck down**.
- Justice Kuttyil Kurien Mathew in the Himat Lal K. Shah case explained that “**freedom of assembly is an essential element of a democratic system**” and that “**the public streets are the ‘natural’ places for expression of opinion and dissemination of ideas**”.

WAY FORWARD

- A reconciliatory approach is not a substitute for juridical assertion.

- The review petition provided the Supreme Court an opportunity to revisit its earlier folly where it merely acted as a judicial extension of the executive.
- Studies have shown that a fair and effective adjudicative mechanism in constitutional matters can meaningfully sublimate the agitation on the street.
- There is the need to balance the right to protest and the right to move along the road in the constitutional climate of the present day, as the Court's only role is to act as the guardian of the right to dissent.

3) Fuzzy law, unclear jurisprudence, trampled rights

GS-2 Important aspects of governance, transparency and accountability, models, successes, limitations, and potential; transparency & accountability and institutional and other measures; GS-3 Challenges to internal security through communication networks, role of media and social networking sites in internal security challenges, basics of cyber security

BACKGROUND

- On February 1, 2021, in the wake of the intensification in the farmers protest and reports of violent incidents on January 26, a number of Twitter accounts became inaccessible in India. It was unclear whether this was Twitter's decision, based on its belief that the accounts had violated its Terms of Service or whether Twitter had been ordered to do so by the government, or by a court.
- Later the Government of India clarified that it had invoked **Section 69A of the Information Technology Act**, and ordered Twitter to block access to these accounts against use of the outraging hashtag, which was deemed a threat to public order.

ISSUE BETWEEN GOVERNMENT OF INDIA AND TWITTER

- With the government invoking Section 69 A of the Information Technology Act, Twitter blocked a few accounts. However, shortly it **restored access to many of the withheld accounts**.

- This prompted a sharp reaction from the government, including a non-compliance notice and threats that Twitter's employees would be prosecuted for violating Section 69A.
- In response, Twitter pointed out that the government's own actions directing it to withhold access to the accounts of journalists, activists, and politicians, **violated Indian law, and the constitutional guarantee of the freedom of speech.**

INFORMATION TECHNOLOGY ACT

- The Section 69A of the IT Act **grants to the government the power to issue directions to intermediaries** for blocking access to any information that it considers prejudicial, and inflammable content on the internet.
- The Section 69A (3) of the IT Act envisages a **jail sentence for up to seven years** for intermediaries who fail to comply.
- In 2009, the government issued "**Blocking Rules**", which set up the procedure for blocking and also stated that all requests and complaints would remain strictly confidential.

ROOTS OF THE PROBLEM LIES IN THE IT ACT

- The root of the problem is **Section 69A of the IT Act**. There are a number of problems with this legal structure.
- It makes **censorship an easy and almost completely costless option**, for the government. The government can simply direct intermediaries to block content, and place the burden of going to court upon the users.
- The easier it is to censor speech, the more likely it is that any government will resort to that option.
- Further, the **Confidentiality requirement** means that the user will not even know why their account has been blocked and, therefore, will be in no position to challenge it.
- There are **no procedural safeguards** i.e. no opportunity for a hearing to affected parties, and no need for reasoned orders.
- This **violates both free speech rights, as well as the right to due process.**

SUPREME COURT STANCE

- In the **Shreya Singhal case** (in which the Supreme Court struck down Section 66A

of the IT Act that made posting "offensive" comments online a crime punishable by jail), the scope of Section 69A and the Blocking Rules were litigated before the Supreme Court.

- The Court noted that every affected individual would retain the constitutional right to challenge a blocking order, through a writ petition before the High Court.
- Also it made it **mandatory for the government to furnish blocking orders along with reasons to affected parties** as it is evidently impossible to challenge something that you cannot even see.

WAY FORWARD

- There is an urgent need for both legal and jurisprudential reform on censorship.
- Legally, the best case scenario would be to prohibit the government from being able to directly order intermediaries to block access to online information, except in narrowly defined emergency cases, and to require it to go through court to do so, with an adequate opportunity for affected parties to defend themselves.
- The **blocking orders should be made public** for fair hearing of the case.
- This process will ensure that the blocking order is a reasoned one, and can be effectively challenged before a court, if need be.
- Also intermediaries (public platforms) are required to deploy such technologies based on **automated tools and appropriate mechanisms for the purpose of identifying or removing or disabling access to information which hampers public tranquility**.

4) In telehealth, scaling up the Indian advantage

GS-2 Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources.

NEWS

- There are lessons from the pandemic that can be applied usefully to how health care can be delivered.

CONTEXT

- In the wake of novel coronavirus pandemic and fear of transmission, health-care

providers have been reassigned from other specialties to COVID-19, restricting high quality care for other conditions.

DISRUPTIONS IN ESSENTIAL SERVICES

- A survey by the World Health Organization (WHO) in 105 countries (July 2020) pointed **essential services were disrupted** in the majority of countries, with immunization, antenatal and childcare services among the most widely affected.
- About 45% of low-income countries incurred at least partial disruption of over 75% of services, relative to only 4% of high-income countries. Almost 60% of services were at least partially disrupted in South East Asian countries.
- The **pandemic has exacerbated inequalities in health care**; people living in rural and remote areas were further disadvantaged by not being able to travel to cities to seek specialist care.
- The **pre-existing shortage of specialists** in many rural areas led to care being delayed or not happening at all.

ENHANCE TECHNOLOGY USE

- The acceleration in the **use of digital technologies** has mitigated the impact of COVID-19 to some extent.
- **Virtual consultations** avoid the risk of COVID-19 transmission and are helping to bridge this socio-economic divide. One such initiative by the government is the **e-Sanjeevani platform**.
- Also the private providers and non-governmental organizations (NGO) have expanded virtual access to underserved populations.
- Yet, given the scale of unmet demand, there is an urgent need to increase the efficiency and effectiveness of every minute spent in virtual care interactions.

LESSONS FROM PANDEMIC

- There are lessons we can learn from the pandemic that can be applied usefully to how we deliver health care.
- **Remote-shared medical appointments** in which multiple patients with similar medical needs meet with a clinician at once, remotely, and where each receives individual attention, can greatly increase telehealth capacity by eliminating repetition of common advice.

- Remote shared medical appointments essentially virtualise in-person shared medical appointments (SMAs) which have been offered successfully in the United States for over 20 years. SMAs also enable peer support and peer-to-peer learning.
- Providers who have offered SMAs have found them to improve both productivity and outcomes for many conditions, notably diabetes. SMAs could help tackle India's widespread "sugar" problem.
- Providers can offer **virtual group information sessions** accessible via smartphone in which a health-care worker explains the benefits of COVID-19 testing and vaccination and answers questions, reaching potentially quite large audiences.
- Engaging in real time with a care provider in an interactive format will likely encourage safe behaviours to a greater extent than without interaction.
- Adoption of in-person shared medical appointments has been slow. Training platforms such as **ECHO**, which train primary-care providers in many States through an online platform — can accelerate adoption and should also guide implementers on how to gather data that can be used to scientifically validate this care model.
- Patients who choose to attend an in-person SMA often like the experience and return for more. This is likely for virtual SMAs too. Trialling and acceptance of this model could **amplify the impact of health systems both during the pandemic and beyond**.

PLATFORMS FOR TELEHEALTH CARE

- The **e-Sanjeevani and other telehealth platforms** could consider offering virtual shared medical appointments. Patients in different villages, with similar conditions can be seen at once remotely by a generalist or specialist, during the pandemic.
- Once transmission risk subsides, seeing patient groups within each village centre will help build supportive bonds, enable sharing of local knowledge, and likely attract supplementary providers.

eSanjeevani platform

- Launched in 2009 by the **Ministry of Health & Family Welfare** 'eSanjeevani' is a **web-based comprehensive**

telemedicine solution. It aims to provide healthcare services to patients in their homes.

- Besides enhancing the quality of medical services, addressing issues about uneven distribution and shortage of infrastructural as well as human resources, eSanjeevani also aims to make healthcare services equitable by **bridging the digital divide** that exists between the urban vs. rural, rich vs. poor etc.
- eSanjeevani can also be used to provide **medical education** to interns, people across Various Common Service Centers (CSCs), etc.
- The portal was designed & developed by the **Centre for Development of Advanced Computing (C-DAC)**, a premier R&D organization of the Ministry of Electronics and Information Technology (MeitY).
- **Services provided**
- eSanjeevani platform has enabled two types of telemedicine services viz.
 1. Doctor-to-Doctor (eSanjeevani) and
 2. Patient-to-Doctor (eSanjeevani OPD) Tele-consultations.

INDIA'S ADVANTAGE

- Relative to other nations, India is well poised to ramp up tele-health, as **data plans are cheaper in India than anywhere**.
- **WHO' s Global Strategy on Digital Health**, adopted by the World Health Assembly, is a call to action providing a road map for nations to rapidly expand digital health services. With innovation in systems thinking, learning and adaptation, new digital tools bring an opportunity to leapfrog into a reality of '**Health for All**'.

5) Combating vaccine hesitancy

GS-2 Governance

NEWS

- A storm of misinformation around COVID-19 vaccines may seriously dent the fight against the pandemic.

CONTEXT

- After a year of unprecedented changes, chaos and panic, COVID-19 vaccines are the most awaited products of 2021. But though mass vaccination drives have begun, the response has been lukewarm despite the availability, affordability, and

accessibility of the jobs to healthcare, sanitation, and frontline workers.

- To date, two vaccines have been approved for inoculation in India: Pune Based Serum Institute's Covishield and Hyderabad based Bharat Biotech's Covexin.

VACCINE HESITANCY

- According to the World Health Organization, vaccine hesitancy is defined as a **reluctance or refusal to vaccinate despite the availability of vaccine services**.
- Like Western nations, vaccine hesitancy has been a cause of concern in the past in India as well. For instance, U.P. witnessed a sudden dip in the uptake of oral polio vaccines when the Muslim community was struck by misconceptions that the vaccine led to illness and infertility; Hesitancy for the MMR (measles, mumps, and rubella) vaccine was sufficiently high in the Malappuram district of Kerala to render community immunisation a challenging goal.
- Vaccine hesitancy is as old as the concept of vaccination itself. However, in times of uncertainty, people are particularly susceptible to **misinformation** due to an intricate combination of cognitive, social and algorithmic biases i.e., information overload and limited attention spans.

CAUSES FOR COVID VACCINE HESITANCY

- The debates around hesitancy for COVID19 vaccines include concerns over **safety, efficacy, and side effects** due to the record breaking timelines of the vaccines, competition among several companies, misinformation, and religious taboos.
- According to a survey conducted by LocalCircles in December, a community social media platform, about 69% of the respondents said they will not rush to vaccinate themselves against the pandemic. Another survey indicates that 55% of healthcare professionals are hesitant to take the vaccine; 64% prefer to do an antibody test before vaccination.

PROBLEMS ASSOCIATED

- Despite negligibly low cases of adverse effects reported so far, such notions have impacted our vaccination efforts. People can choose to not be inoculated, but to break the chain of transmission, it is

imperative to have the right strategy in place.

WHAT CAN BE DONE?

- It is suggested to adopt the **idea of libertarian paternalism**, a concept of behavioural science, which says it is possible and legitimate to steer people's behaviour towards vaccination while still respecting their freedom of choice.
- Instead of anti-vaxxers, the **target audience must be the swing population** i.e., people who are sceptical but can be persuaded through scientific facts and proper communication.
- People need to pause before they share any 'news' from social media. It becomes crucial to inculcate the habit of inquisitive temper to factcheck any news related to COVID19 vaccines.
- Use the **celebrity effect** — the ability of prominent personalities to influence others to take vaccines.
- The infodemic around vaccines can be tackled only by actively debunking myths, misinformation and fake news on COVID19 vaccines.

6) Too many IITs, unrealistic expectations

GS-2 Education, Government policies and interventions

CONTEXT

- It is time to rethink the changing role and the mandate of the IITs in order to ensure that quality and focus continue.

INDIAN INSTITUTES OF TECHNOLOGY (IITs)

- IITs, are the crown jewels of Indian higher education.
- They are world-renowned for the quality of their graduates and for their academic programmes in a range of fields in technology and engineering — and in the past decade, in research and innovation through research parks as well.
- They are among the few Indian higher education institutions that do reasonably well in the global rankings.

ISSUE ARISING

- According to current plans, the IIT "system" has **expanded beyond its capacity** to maintain its high standards and is in danger of sinking into mediocrity.

- The recent decision of the University Grants Commission to permit select IITs under the **'Institutions of Eminence' category** to set up campuses abroad could further weaken these already stretched institutions.
- It is time to rethink the changing role and mandate of IITs in order to ensure that quality and focus are maintained — and by prioritising the needs of India, but with a 21st century twist.

FROM 5 TO 23 IITs

- The original five IITs were established in the 1950s and early 1960s. Four had a foreign collaborator: IIT Bombay (the Soviet Union), IIT Madras (Germany), IIT Kanpur (the United States), and IIT Delhi (the United Kingdom).
- Currently, there are **23 IITs**. After setting up IIT Delhi in 1961, it took another 34 years to establish the sixth IIT in Guwahati (1994).
- Since then, 17 more IITs have been established, including several that resulted from upgrading existing institutions.

WHERE THE PROBLEM BEGAN?

- Funded generously by the central government, the IITs focused exclusively on technology and engineering.
- They later added the humanities and social sciences — but these programmes were modest until the 2020 National Education Policy emphasised the IITs should focus more on “holistic and multidisciplinary education”.

Small Institutions with short of faculty

- According to data available with the Council of Indian Institutes of Technology, the IITs are small institutions with average student enrolments in the five older IITs of around 10,000.
- Some of the newer ones remain quite small, with fewer than 400 students. The older IITs have faculties of around 1,000, while some of the new ones, such as those in Palakkad and Jammu, employ 100 or so. Further, most of the IITs suffer from a severe shortage of professors.
- For example, IIT Dhanbad is approved to hire 781 instructors but only 301 positions were filled as of January 2021.

WHAT IITs ARE NOT?

- The IITs are not universities, they have neither the range of disciplines nor the size that characterise universities worldwide.
- They were started as undergraduate institutions; they gradually added small postgraduate programmes, but some are now adding significant post-graduate offerings.

WHAT IITs ARE?

- The IITs were, and are, **self-consciously elite institutions aiming at the highest international academic standards** — a tradition which, in our view, is important but increasingly difficult to maintain.
- Around 7,00,000 students sit for the national engineering entrance examination for the IITs and several other elite institutions each year and a vast majority of them target the 16,000-plus seats available in the 23 IITs.
- The IITs have traditionally attracted high quality faculty, where most have doctorates from the most respected western universities.
- Top quality professors have been attracted to the IITs because of the quality of the students, the chance to work with the best academic minds in India, and a commitment to India's development.
- While salaries do not compare well on the international market, working and living conditions on the older IIT campuses are comfortable.

CHANGES THAT LEAD TO PROBLEMS

- In recent years, however, things began to change. The **IITs could not attract a sufficient number of young faculty to fill vacancies** resulting from retirements.
- The emerging IT and related industries in India offer much more attractive salaries and exciting work opportunities, and many are lured to universities and industry in other countries.
- At the same time, the government dramatically expanded the number of IITs, spreading them around the country.
- Most of the new IITs are **located in smaller towns** such as Mandi (Himachal Pradesh), Palakkad (Kerala), Dharwad (Karnataka), and others, **making it difficult to attract the adequate staff**.
- **Facilities and infrastructure are unlikely to be “world class.”** It is, thus,

inevitable that quality will decline and the “IIT brand” diluted.

- Another area is the **lack of correlation between the local needs and IITs**. Most of the IITs and other prominent “Institutes of National Importance” are ‘academic enclaves’ with little connection with their regions.
- Only a few State governments are effectively utilising the presence of IITs in the local milieu through knowledge sharing networks involving universities, colleges and schools, and local industries and firms. Similarly, there are few community outreach programmes.
- Such an approach could prevent disruption, such as that occurring in Goa, where local groups are resisting locating a new IIT in their region.

WAY FORWARD

- While excellent engineering/STEM (Science, Technology, Engineering and Mathematics) institutions are needed, they all do not have to be IITs. Instead **10-12 “real” IITs located near major cities are practical for India**.
- Some of the newly established institutes can be renamed and provided with sufficient resources to produce high quality graduates and good research.
- A more limited “IIT system” needs to be funded at “world class” levels and staffed by “world class” faculty, perhaps with some recruited from top universities internationally.

7) A verdict that has ended a long silence.

GS-3 Role of women and women’s organization and Social empowerment.

CONTEXT

- A Delhi court acquitted former journalist Priya Ramani in a defamation case filed by former Union Minister MJ Akbar against after she accused him of sexual harassment.

WHAT IS DEFAMATION?

- **Defamation** is the communication of a false statement that harms the reputation of an individual person, business, product, group, government, religion, or nation.
- In India, defamation is **both a civil and a criminal offence**.

- **Civil defamation** involves no criminal offence, but on account of this kind of defamation, you could sue the person to get a legal compensation for your defamation. It is studied under law of torts i.e. as a civil wrong.
- While the law of **criminal defamation** is premised on a person’s right to a reputation. Making or publishing “any imputation concerning any person, intending to harm, or knowing or having reason to believe that such imputation will harm the reputation of such person”, is criminal defamation. Under Criminal Law, Defamation is a bailable, non-cognizable and compoundable offence.

DEFAMATION AND THE DEFENCE

- **Defamation-** Akbar alleged that Ms Ramani’s allegations were defamatory and had not only damaged his goodwill and reputation in his social circles, the political stage, but also among community, friends and colleagues, thereby causing him irreparable loss and tremendous distress.
- **Defence-** Ramani’s lawyers pleaded truth as her defence, made in good faith, in the public interest, and for the public good.
- Ramani premised her defence on the **First Exception to Section 499** of the Indian Penal Code (which deals with defamation), which postulates that- “It is not defamation to impute anything which is true concerning any person, if it be for the public good that the imputation should be made or published.”

HIGHLIGHTS OF THE VERDICT

- The court accepted the defence of the accused that she disclosed the truth regarding the incident of sexual harassment against on ground public good.
- Further it took the note that a **woman cannot be punished for criminal defamation when she raises her voice against sexual harassment** because “the right of reputation cannot be protected at the cost of the right of life and dignity of the woman”.

SIGNIFICANCE OF THE VERDICT

- The acquittal on a charge of defamation by a victim of sexual harassment is being celebrated despite the alleged perpetrator has faced no criminal prosecution at all.
- This judgment shines like a good deed in a naughty world when contrasted against a

series of cases where the legal process has failed to bring closure and justice to women complainants.

- By rarely visiting retribution upon the perpetrators, the legal process has hitherto yielded little in terms of relief to the victim. But against all odds, the sight of Ms. Ramani triumphing in court may come to be a defining image in India's long walk towards respecting female sexual autonomy.

- Many more women will now be emboldened to resist harassment at the workplace and elsewhere. Hopefully a few men are now deterred from trading power and position to secure sexual favours.

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INDIAN EXPRESS EXPLAINED

1) Running cars on hydrogen: What is India's National Hydrogen Mission?

Why in the news?

- Union Budget 2021 has announced the National Hydrogen Mission which aims for generation of hydrogen from green power resources. It allocated Rs 1,500 crore for renewable-energy development and Hydrogen Energy Mission.
- Let us understand how hydrogen will be used to power the automobile industry, its benefits and challenges.

About Hydrogen

- The most common element in nature but is not found freely.
- Hydrogen **exists only combined with other elements**, and has to be extracted from naturally occurring compounds like water (which is a combination of two hydrogen atoms and one oxygen atom).
- Although hydrogen is a clean molecule, **the process of extracting it is energy-intensive**.
- The history of using hydrogen as a fuel dates back to the 1930s when aircraft, LZ129 Hindenburg, tried to fly with hydrogen fuel. But unfortunately it exploded.
- Further the development of hydrogen as a fuel was developed by space agencies like NASA.
- As the fossil-fuels have become dearer, the new world is arriving at hydrogen fuel which is cheaper, abundant and more energy efficient.
- There are 3 types of hydrogen fuel:
 - GREY HYDROGEN** : It is extracted from **hydrocarbons** (fossil fuels, natural gas). It constitutes India's bulk production. But the process of production **releases CO₂** as its byproduct.
 - BLUE HYDROGEN** : It is hydrogen generated from **fossil fuels with carbon capture and storage options**. It is better than grey hydrogen.
 - GREEN HYDROGEN**: It comes from **renewable energy** (like solar, wind). Electricity generated from solar/ wind energy is used to split water into hydrogen

and oxygen. By-products: water, water vapour.

- Green hydrogen has specific advantages. One, it is a **clean burning molecule**, which can decarbonise a range of sectors including iron and steel, chemicals, and transportation. Two, **renewable energy that cannot be stored or used by the grid can be channelled to produce hydrogen**.

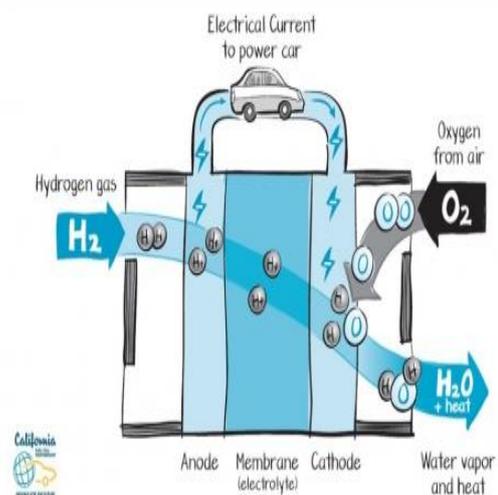
How is hydrogen used in automobiles?

- Hydrogen is an **energy carrier, not a source of energy**.
- Hydrogen fuel **must be transformed into electricity** by a device called a **fuel cell stack** before it can be used to power a car or truck.
- A fuel cell converts chemical energy into electrical energy using oxidising agents through an oxidation-reduction reaction.
- Fuel cell-based vehicles most commonly **combine hydrogen and oxygen** to produce electricity to power the electric motor on board. Since fuel cell vehicles use electricity to run, they are considered electric vehicles.

Fuel Cell working

What is a fuel cell?

Takes hydrogen in and puts electricity and water vapor out



U.S. DEPARTMENT OF ENERGY | OFFICE OF ENERGY EFFICIENCY & RENEWABLE ENERGY | FUEL CELL TECHNOLOGIES OFFICE

- Inside each individual fuel cell, hydrogen is drawn from an onboard pressurised tank

and made to react with a **catalyst**, usually made from **platinum**.

- As the hydrogen passes through the catalyst, electrons are removed, which are forced to move along an external circuit, producing an electrical current.
- This current is used by the electric motor to power the vehicle, with the only byproduct being water vapour.

How efficient is hydrogen as a fuel?

- Hydrogen fuel cell cars have a **near zero carbon footprint**. Hydrogen is about **two to three times as efficient as burning petrol**, because an electric chemical reaction is much more efficient than combustion.

What are the challenges of hydrogen fuel cell tech?

- A big barrier to the adoption of hydrogen fuel cell vehicles has been a **lack of fueling station infrastructure** — fuel cell cars refuel in a similar way to conventional cars, but can't use the same station. There are fewer than 500 operational hydrogen stations in the world today.
- **Safety** is yet another concern. As the fuel is stored at very high pressure (upto 700 bar), there is a **risk of explosion** and fuel is also highly combustible.
- There are only 3 manufacturers of this technology namely - Honda, toyota and Hyundai.

Way Forward

- India's mission to use hydrogen as fuel can be achieved with proper infrastructure and support to companies and startups to boost R&D into this sector.
- An efficient walkthrough with this tech can help India to balance its growing energy matrix and achieve its dream of decarbonisation by 2050.

2) What do the amendments to the Juvenile Justice Act mean?

Why in the news?

- The Cabinet has decided to make amendments to Juvenile Justice (Care and Protection of Children) Act 2015.
- Let us understand why these amendments are being made and issues around these amendments.

About Juvenile Justice (Care and Protection of Children) Act 2015

- It carried forward the clauses of 2000 Act along with new set of laws which are:
- Under the Act, the offences committed by a juvenile were categorized into three classes:
- **Petty Offences:** It includes the offences for which maximum punishment under the Indian Penal Code or any other law is **imprisonment up to three years**.
- **Serious Offences:** It includes the offences for which punishment under the Indian Penal Code or any other law is **imprisonment between three to seven years**.
- **Heinous Offences:** It includes the offences for which minimum punishment under the Indian Penal Code or any other law is **imprisonment of seven years or more**.
- All the persons below the age of eighteen years were put in one class under the 2000 Act irrespective of the offence. While under the 2015 Act children in conflict with the law are put under **two classes or groups**:
- Those below 18 years of age in case of petty or serious offences and those below 16 years of age in case of heinous offences. This group is to be dealt with by the **Juvenile Justice Board** constituted under this Act.
- Those who have completed 16 years of age but are below 18 in case of heinous offences and such offenders **can be treated as adults**. They are to be kept in the place of safety until the age of 21 and thereafter may be sent to an adult jail to complete the remainder of the sentence.
- The 2015 Act also gave legitimacy to adoption by making **CARA (Central Adoption Resource Authority)** a **statutory body**.
- It enabled the establishment of **Children Courts** where the trial of accused happens till the age of 21.
- **All child care institutions**, whether run by State Government or by voluntary or non-governmental organisations, which are meant, either wholly or partially for housing children, regardless of whether they receive grants from the Government, are to be **mandatorily registered under the Act**.
- **What are the changes proposed?**

Issue	Amendment
Adoption had a lengthy court process.	District Magistrate and Additional DMs are given the power to issue adoption orders to ensure speedy disposal of cases and enhance accountability.
National Commission for Protection of Child Rights (NCPCR) in 2018-19 found that not a single Child Care Institution (CCI) in the country was found to be 100 percent compliant to the provisions of the JJ Act.	District magistrates (DMs) along with additional district magistrates (ADMs) will monitor the functioning of various agencies under the JJ Act in every district. This includes the Child Welfare Committees, the Juvenile Justice Boards, the District Child Protection Units and the Special juvenile Protection Units. DM's are also responsible now for ensuring that CCIs falling in their district are following all norms and procedures. Background Check of all the members of Child Welfare Committee will be done by the DM.
Child Care Institutions could be run even without government approval.	No new children's home can be opened without the sanction of the DM.

Challenges

- The amendments are criticised as they give **too many responsibilities** to District Magistrate.

3) What 2020 taught us about India's internal migration

Why in the news?

- It's been 11 months since the 2020 March lockdown was announced due to Coronavirus pandemic outbreak.
- Large scale internal migration took place which has been described as the second-largest since the Partition of the country.
- Social scientists from **Centre for Development Studies, Kerala**, have estimated and analysed this internal migration and have come to some conclusive facts.
- India has an **estimated 600 million migrants**. In other words, roughly half of India is living in a place where it wasn't born. This population is double the population of the United States.
- Within this 600 million, there 3 type:
- **Within District:** An estimated **400 million Indians** migrate within the district they live in. It is a large chunk of the internal migration.
- **Within State:** **140 million** migrate from one district to another but within the same state.
- **To other states:** Only about 60 million — that is, just 10% of all internal migrants — move from one state to another.
- 3) About 200 million migrants were broadly affected by the Covid disruption. Even within these 200 million, only about 140 millions migrated for earning a livelihood.
- 4) The most **dominant form of migration is from rural to rural areas**. Only about 20% of the total migration (600 million) is from rural to urban areas.
- 5) That is not to suggest that urban migration is not important. In fact, 20% of the total migration is from one urban area to another urban area. As such, **urban migration (rural to urban as well as urban to urban) accounts for 40% of the total migration**.
- 6) India's proportion of internal migrants (as a percentage of the overall population) is much **lower than some of the**

comparable countries such as Russia, China, South Africa and Brazil — all have much higher urbanisation ratios, which is a proxy for migration level.

- 7) Not all migrants were equally affected during the pandemic. The **worst-hit** were a class of migrants called “**vulnerable circular migrants**”. “Vulnerable” because of their weak position in the job market and “circular” migrants because even though they work in urban settings, they continue to have a foothold in the rural areas. They may be rickshaw pullers, construction site workers etc. This class constitutes 75% of the informal economy outside agriculture.
- 8) Close to 60 million moved back to their “source” rural areas in the wake of pandemic-induced lockdowns. That number is roughly six-times the official estimates.

3) Why is India opening up the Geo-spatial sector? What impact will this have?

Why in the news?

- The **Ministry of Science and Technology** had **deregulated the Geo-spatial sector in India and liberalised the sector** to a more competitive field.

What is the Geospatial data?

- Geospatial Information Systems (GIS) essentially collect and pool data on everything on the planet — be it objects or events — and tag them geographically using geospatial metadata (such as latitude and longitude coordinates, altitude, trajectory, etc.) so that they can be **identified based on their exact locations**.
- Managing the apps on your smart-phone, traffic lights, air travel, weather forecasting and the raging pandemic all depend on GIS for accuracy.
- The past decade has seen an increase in the use of geo-spatial data in daily life with various apps such as food delivery apps

like Swiggy or Zomato, e-commerce like Amazon or even weather apps.

- Till now this data was **highly regulated by the government in the name of security**. It gave space for **red tape bureaucracy and delayed developmental projects**.

What are the benefits of deregulation of this sector?

- The deregulation **eliminates the requirement of permissions as well as scrutiny**, even for security concerns.
- Indian companies now **can self-attest**, conforming to government guidelines without actually having to be monitored by a government agency. It will enhance trust between government and businesses.
- The mapping of the entire country, that too with high accuracy, by the Indian government alone could take decades. The government therefore felt an urgent need to incentivise the geo-spatial sector for Indian companies and **increased investment from private players in the sector**.
- The government will ensure more players in the field, competitiveness of Indian companies in the global market, and **more accurate data available** to both the government to formulate plans and administer, but also for individual Indians.
- Startups and businesses can now also use this data in **setting up their concerns, especially in the sector of e-commerce or geo-spatial based apps** – which in turn will increase employment in these sectors.
- The government also expects an **increase in investment in the geo-spatial sector** by companies, and also an increase in export of data to foreign companies and countries, which in turn **will boost the economy**.
- If the new geospatial policy can tap this potential, it will be an excellent roadmap for India to ensure data sovereignty across civilian and defence domains.

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RSTV BIG PICTURE

1) Roadmap to implement Infra Projects

Context

- The Union Budget 2021-222 gave the much-needed fillip to the infrastructure sector.

Focus Areas for ensuring the Sustainability of Infrastructure Projects

- Ensuring **Sustainable Finance** by way of disinvestment and FDI
- **Human Resource**- Maintaining the quality manpower in line with Technology upgradation.
- Enriching the **R&D activities**
- Ensuring **easy availability of land**- By resolving issues related to land acquisition.
- Special mechanism for **Intellectual issues**
- Setting up of a **Development Finance Institution** to unleash the potential of industries

- Allowing large-scale **asset monetisation**
- **Academic & Industrial collaboration**
- **River Rejuvenation Program**
- **Contract management system** along with **dispute resolution mechanism**
- Creation of **National dashboard for Infrastructure projects**
- A special focus on the **PPP model** for enriching the efficiency of the Infra projects.

Conclusion

- The infrastructure push is expected to not just **boost India's post-pandemic economic recovery, but also create jobs.**
- An **effective implementation policy** is the need of the hour.

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