

WEEKLY CURRENT AFFAIRS

JANUARY 2023

FOURTH WEEK

(15th-22nd)

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GS I: Indian heritage & culture

SAGOL KANGJEI

1. Context

Recently Union Home Minister Inaugurated, 122-foot-tall statue of a polo player astride a Manipur Pony in Imphal. It is believed that Sagol Kangjei, the modern-day Polo game originated in Manipur.

2. What is Sagol Kangjei

- Sagol Kangjei is the name of the game of polo played in Manipur. Sagol means pony/horse, Kang means a ball or round object, and jei is a stick used for hitting. In the state of Manipur, it has always been a game for the common man. It is played by seven players on each side and the players are mounted on ponies.
- Manipuri polo symbolises the immense cultural heritage of the state, and great efforts have been put made to raise the standard of this popular game. The prominent patrons of the game were King Kyamba and King Khagemba (1597-1672 A.D.), and King Chandra Kirti (1850 - 1886 A.D.). The latter, especially, is to be credited with popularising the sport in other parts of the world.
- There are no goalposts in this game. Goal lines determine the end of the two boundaries of the rectangular field. The ball (hang drum) is white. To score a goal the ball must cross the line.
- The polo stick is made of cane or wood, and is called Kang – hu and has a head of hardwood and the ball is made of bamboo root.
- The traditional attire consists of a chin - strap (khadangchet) and a turban, for protecting the head. Leg - guards (khongyom) are worn below the knee. Since no shoes are worn, the players use khumit - Khang. A leash of thick leather is held by the index finger of the left hand.
- This is a seasonal game and is played in the Manipuri month of September / October and in June / July.

3. About Manipur Pony

- The Manipur Pony is one of five recognised equine breeds of India, and has a powerful cultural significance for Manipuri society. The Marjing Polo Complex has been developed as a way to conserve the Manipur Pony.
- One source stated Tibetan ponies as its ancestors while another source stated its origin to be a cross between Mongolian wild horse and Arabian. In some manuscripts, it is referred to as Mangal-sa or Mongolian animal.
- In Manipuri mythology, the Manipuri pony was regarded to have descended from “Samadon Ayangba” the winged steed of Lord Margjing, one of the guardian deities of Manipur.
- According to the Imphal-based curator and author, the Manipur Pony features in mythological stories, and is celebrated in oral tradition, ballads, and rituals. Historically an important part of Manipuri armies, it is used only for cavalry, rituals, and sport, not for working as a draught animal.
- The mythology is that it was created as a winged beast that had to be controlled because of which its wings had to be lopped off and it fell to the ground.
- It was created by Sanamahi, also known as Marjing, who is the older of two brothers in an archetypal sibling mythology. He feels that his birthright is stolen by his younger brother Pakhangba and creates the winged beast . Samadon Ayangba to try to kill his brother.
- The horse turns out to be really destructive and begins to get out of control. Sanamahi’s father orders him to control it, as a result of which Sanamahi cuts off its wings.

4. Conserving the breed

- The small and dwindling numbers of the Manipur Pony has been a cause for concern.
- The 17th Quinquennial Livestock Census 2003 has recorded 1,898 Manipur Ponies; the number fell to 1,101 in the 19th Quinquennial Livestock Census in 2012.
- However, when the Manipur Pony Society tried to conduct a random survey in the state in 2014, they said they found it difficult to count even 500 of the animals.

GS I: Indian heritage & culture

MAGHI MELA

1. Context

Maghi Mela has been celebrated in the city of Sri Muktsar Sahib in Punjab for centuries in memory of 40 Sikh warriors who were killed fighting the Mughals in the Battle of Khidrana in 1705.

It was after this battle that Khidrana was named Muktsar, or the pool of liberation.

2. Key Points

- Over the years, political conferences became the main attraction in this mela, and often set the political tone for the state.
- Since 2018, however, there have been attempts to reduce the number of conferences and de-politicize the festival.
- This year, the festival is being celebrated on January 14.

3. A history of Maghi Mela

- Maghi Mela is held in the holy city of Sri Muktsar Sahib every year in January or on the month of Magh according to the Nanakshahi calendar.
- It is one of the most important festivals for Sikhs.
- The festival marks the martyrdom of 40 Sikh soldiers in a battle against the Mughals.
- In the 1700s, the Mughals and Sikhs were at constant war with each other.

4. Battle of Khidrana

- The story of the Battle of Khidrana in 1704 during the siege of Anandpur Sahib by the Mughals 40 Sikh soldiers deserted their posts and fled.

- Upon arriving at their village near Amritsar, a woman named Mai Bhago scolded them and rallied the fighters to return to Anandpur Sahib in the service of their Guru.
- The freshly motivated soldiers along with Mai Bhago set off towards Anandpur Sahib to help Guru Gobind Singh hold the fort against the Mughals.
- They met the Guru at Khidrana where they took on a large Mughal army, sacrificing their lives in the process.

The actual martyrdom day of 40 Sikh soldiers (Muktas) falls in the month of Vaisakh, approximately in the first week of May. Gurdwaras continue to pay tributes to the martyrs in that month.

- About a century ago due to the scarcity of water in the region the mela started being organized on the Sankrant of Magh month.
- This tradition has continued, giving the festival its present name.
- The Mela starts on Maghi day and continues for another day or two.
- People from different parts of the state and even outside come to Muktsar to take a holy dip in the Sarovar (lake) of Gurdwara Darbar Sahib and enjoy the festivities.

5. Political conferences

- Back in the day, people would arrive in the city days before the actual Maghi day.
- In the evenings, there would be Kavi darbars (poetry sessions) where politicians would speak.
- This is likely how the political conferences, which can be traced back to the mid-1950s, started.
- Over time, the conferences were increasingly organized in the daytime, during the actual mela.
- Lengthy, overnight stays became less common due to changing lifestyles and priorities.
- Back in the day, people used to display their agricultural equipment for about 10 days, and roadside ferries used to continue for about a month.

- Relatives used to live in each other's houses for a month during those days.

6. Major attractions in Mela

- Nihang Sikhs have already arrived in Muktsar with their horses.
- Various varieties of cattle will also be displayed for sale.
- A site has also been allotted for amusement rides and swings.
- Beyond the livestock and the rides, Maghi Mela is expected to have stalls selling various items from crockery to toys and trinkets.
- Over the years, political conferences had started overpowering the mela a large number of people used to come only for the conferences in buses hired by political parties.
- Now, however, since political conferences are limited, devotees are actually coming to see the mela.

GS I: Indian heritage & culture

VIVEKANANDAS FOUR YOGAS

1. Context

January 12 this year marks the 161st birth anniversary of Swami Vivekananda, observed as National Youth Day.

2. About Swami Vivekananda

- He was born on 12th January 1863 in a Bengali family in Calcutta and was originally named Narendranath Datta.
- In his honour, the Government of India in 1984 declared his birthday National Youth Day.
- From a young age, he nurtured an interest in Western philosophy, history, religion, spirituality and theology.
- He was well-read in many subjects and would meditate in front of the images of Hindu Gods and Goddesses.

- He met the religious leader Ramakrishna Paramhansa, who later became his Guru and he remained devoted to him until the latter died in 1886.
- In 1893, he took the name 'Vivekananda' after Maharaja Ajit Singh of the Khetri State requested him to do so, changing from 'Sachidananda' that he used before.

3. Vedantic Humanism

- There is only one Self in the universe. There is only one Existence. The entire universe is a manifestation of the absolute One.
- Religious acceptance was important and not tolerance because tolerance comes out of a superiority complex.
- The most desirable path for self-realisation was the selfless service of man. Each and every chore of your life should be done with divinity.
- External rituals of religion are of secondary importance but the spiritual essence of a religion should be preserved and accepted.

4. Divinity within ourselves

- Swami Vivekananda asserted that each soul is potentially divine. The goal of human beings should be to manifest this divinity within, which can be done by controlling nature, external and internal.
- "Infinite power is in the soul of man, whether he knows it or not. Its manifestation is only a question of being conscious of it. With the full consciousness of his infinite power and wisdom, the giant will rise to his feet."

5. Swami Vivekananda talked about the four pathways of attaining moksha from worldly pleasure and attachment in his books, we look at them.

5.1 Karma Yoga

Emphasising the importance of work, he said that God can be attained through work. A lot of people fritter away a great amount of their energies because they are oblivious to the secret of work. Karma Yoga teaches how to employ to the maximum advantage all our energies in our work. Karma-Yoga teaches how to work for work's sake, unattached to the results.

5.2 Bhakti Yoga

Bhakti Yoga teaches that love is a vital element of all human beings. It teaches how to love bereft of any ulterior motives.

All love is expansion, all selfishness is contraction. Love is therefore the only law of life. He who loves lives, he who is selfish is dying.

5.3 Raja Yoga

Raja Yoga opens up the psychological way to union with God. This Yoga teaches that in order to acquire knowledge, we'd have to use a method called concentration.

For Example, a chemist who works in her laboratory, concentrating all the powers of her mind, bringing them into one focus, and throwing them onto the elements; the elements stand analysed and thus her knowledge comes.

5.4 Jnana Yoga

Jnana Yoga is the path of knowledge. Weeding out the darkness of ignorance through the light of knowledge, it can bring the 'fire' and 'light' alive by burning all the impurities of the mind.

The mind does not give up its attachment to worldly pleasures unless it has tasted something greater and higher. Self-knowledge, according to jnana-yoga, is true liberation.

6. Faith in oneself

All knowledge, power, purity, and freedom are in oneself. If you think yourselves weak, weak you will be; if you think yourselves strong, strong you will be. Not shy away from taking responsibility for their actions.

GS I: Indian heritage & culture

HISTORY OF NIZAMS

1. Context

The mortal remains of Mukarram Jah, the titular eighth Nizam of Hyderabad, will be kept at Hyderabad's Chowmahalla palace on Tuesday (January 17) for the public to pay respects.

Nawab Mir Barkat Ali Khan Walashan Mukarram Jah Bahadur passed away in Istanbul at 89.

2. Key points

- Chosen the heir of his grandfather Mir Osman Ali Khan, the richest man on the planet, Mukarram Jah first saw the power of his family end as Hyderabad merged into India and most of the seventh Nizam's fabulous fortune disappeared under the weight of infighting, debts, legal troubles, and inept handling.
- Osman Ali Khan had left behind 104 grandchildren, so Mukarram Jah was no stranger to court battles over property and inheritance.
- One such battle involved a sum of £35 million, the governments of India and Pakistan, and was eventually settled by a UK court.
- The story of this court battle was known as the Hyderabad funds case and of the eighth Nizam himself.

3. The Hyderabad funds case

- On September 20, 1948, a day after Hyderabad's forces had surrendered to India, Nizam's finance minister, Moin Nawaz Jung, transferred a sum of £1,007,490 and nine shillings to the account of Pakistan's High Commissioner, Habib Ibrahim Rahimtoola, without first taking Nizam's consent. This money lay in the National Westminster Bank in London.
- In 1954, India sued for the return of the money, but the case stayed, with Pakistan claiming sovereign immunity.
- The bank then said it would keep the money until the Nizam, the government of India and Pakistan decided among themselves whom it belonged.

- In 2013, Pakistan broke sovereign immunity by going back to court for the sum, which by now, accumulating interest, had increased by 35 times.
- The legal battle went on for six years, with Pakistan claiming that money was sent because the Nizam wanted Pakistan's founder, Muhammad Ali Jinnah, to procure weapons for them to fight off Indian troops.
- These weapons were bought and dropped off in Hyderabad by a British pilot, Frederick Sidney Cotton, in 35 trips from Karachi, claimed Pakistan, and thus, the money was payment for services rendered.
- In 2018, the government of India and Nizam's grandsons Mukarram Jah and brother Mufakkam Jah decided to fight the case jointly.
- A year later, in 2019, the UK High Court ruled in favor of India and Nizam's heirs, granting them the entire £35 million.
- Experts have pointed out that India and Pakistan case was about much more than money.
- Several times in the 70 years it took to resolve the case, there had been attempts to settle it out of court, but the ties between the two nations made that impossible.
- In his 2017 book 'The People Next Door' T C A Raghavan, who was posted in the High Commission at Islamabad twice, first as Deputy High Commissioner and later as High Commissioner, wrote about the case, "For Pakistan, the issue is of Hyderabad's forced accession following a military intervention when its ruling Muslim prince wanted independence and a closer relationship with Pakistan.
- The fund thus represents that symbolic relationship. For India, equally, principle issue, the possible claim can Pakistan have to the funds of the erstwhile Hyderabad state?"
- For Mukarram Jah, the case could have meant many things, but the financial aspect could not have been insignificant, as his estate hemorrhaged money and his expenses developed sinkholes, from his sheep farm in Australia to his many divorces and alimony payments.

4. History of Mukarram Jah

- Mukarram Jah was born on October 6, 1933, in France, to Prince Azam Jah and Princess Durru Shehvar, the imperial princess of the Ottoman Empire.

- He was educated in the Doon School in Dehradun and later at Harrow and Peterhouse, Cambridge.
- He also studied at the London School of Economics and the Royal Military Academy Sandhurst.
- On April 6, 1967, he was coronated as Asaf Jah the Eighth after the death of Mir Osman Ali Khan in February 1967.
- Chosen as heir over his father Azam Jah, Mukarram did not show much interest in managing and preserving his vast estate.

Upon accession, Mukarram inherited a “**ridiculously inflated**” army of 14,718 staff and dependants, including people whose only job was to dust chandeliers or to ground Nizam’s walnuts, a staggering collection of gems and jewelry; and heirlooms that included priceless paintings and furniture.

- He also inherited a vicious financial wrangle, with far too many competing claims and legal cases on the various properties.
- Barely six years later, Mukarram fled to a sheep farm in Australia, leaving the estate and his headaches in the hands of deputies and devoting his own time to the great love of his life tinkering with old automobiles.
- However, things went from bad to worse, as Mukarram swindled by those he trusted and jewelry and heirlooms pilfered.
- The sheep farm had to sold off to settle his debts, and Nizam then moved to Turkey.
- In the 2000s, matters improved somewhat, with Nizam’s first wife, Princess Esra, returning to Hyderabad and introducing some order into the mess there.
- Chowmahalla and Falaknuma palaces have been restored latter is now run by the Taj Group.
- However, family tiffs and troubles never ended for the Nizam.
- Even in the Hyderabad funds case, after the UK high court order, some of his cousins claimed that as Mukarram was merely the titular Nizam, he could not be considered the heir to the sum deposited by the seventh and actual Nizam and that money should distributed among all the descendants.

GS I: Indian heritage & culture

LOHRI FESTIVAL

1. Background

- Lohri is the first festival of the New Year and is a popular harvest festival that is celebrated with great fervor and enthusiasm all across Punjab, and parts of Haryana, Rajasthan, Himachal Pradesh, Jammu, and Delhi.
- As per experts, the festival marks the beginning New Year which falls on January 13 of each year and is mostly celebrated by Sikhs and culturally by Hindus across the country and worldwide.
- Lohri also known as Lohadi or Lal Loi is a festival that marks the harvest season in Punjab. Lohri falls on January 13 of each year, one day before Makar Sankranti which is another popular Hindu holiday that falls between January 14-15 every year.
- Lohri marks the end of the winter season and the start of the longer days.
- Lohri is celebrated to welcome the sun to the northern hemisphere.
- However, it is traditionally associated with harvesting rabi crops.

2. The history of Lohri

- The most popular folklore associated with Lohri is that of the legend Dulla Bhatti, who had lived in Punjab during the reign of Mughal Emperor Akbar.
- He used to rob the rich and help the needy and poor.
- As per historians, once he saved a girl from the kidnappers and took care of her like his daughter.
- And on her wedding day, he even performed the rituals in the absence of a priest.
- People loved him and respected him, and began to sing the folk song "**Sundar-Mundriye**" every year on the occasion of Lohri.

3. Significance of Lohri

- It is believed that after Lohri the sun's trek northward come to an end on Lohri.

- After Makar Sankranti, the day after this festival, the nights get shorter and the days get longer.
- In short, the festival is celebrated for the arrival of warmer weather, which is represented by the bonfire.
- From this day on, a lot of people, particularly farmers, start harvesting the crop.
- On this day, people also recite some antiquated mantras so they can feel the warmth of the sun during the chilly winter days.
- The festival holds special importance for a new bride and even a newborn in the family, and family members make sure to make their first Lohri a memorable one.
- They together pray for good health and prosperity.

4. The rituals of Lohri

- The celebration involves lighting a bonfire, doing parikrama of the bonfire and devoting puffed rice, jaggery, sesame seeds, popcorn, and coconut in the fire and pray the almighty for a prosperous New Year.
- People also sing folk songs and dance, especially bhangra and gidda on this auspicious occasion.

The menu of holy festival includes all things warm and healthy. From Gajak, Rewari, Till Laddoo, Peanut Chikki to Makki Di Roti and Sarso Da Saag, the menu is quite elaborate and filling.

5. Dulla's rebellion

- Dulla's father and grandfather were Muslim-Rajput landlords (zamindaars) of Nankana Sahib in Sandal Bar region of Punjab who opposed the taxation system levied by the Mughal empire under Emperor Akbar.
- They refused to pay the new taxes to the local 'Faujdar' (military officer appointed to collect taxes).

- There were frequent skirmishes between the Bhatti landlords and the Faujdar's armies where the Bhattis pushed back and defeated the Mughal forces.
- Ultimately, Emperor Akbar called for their arrests and execution. They were executed 4 months before Dulla was born.
- Ladhi hid her husband and father-in-law's weapons in a closed room and kept their history a secret from the headstrong teenage Dulla.
- When Dulla and his friends created mischief in the village by damaging women's water pots with their catapults, a village woman taunted him by saying, "Why do you show your strength here to women and poor people? If you are so strong, go and avenge your father".
- This made Dulla ask his mother to tell him the truth and she finally opened up the secret room full of weapons.
- Dulla's young blood and courage led him to form a band of highway robbers along with his friends using these weapons.
- They would steal from the rich traders and distribute the goods to poor villagers Dulla became a saviour for the poor.
- One such poverty-stricken Brahmin landed at Dulla's camp with a special plea.
- He had two young and beautiful daughters **Sundari and Mundari**, who were betrothed in another village.
- He was too poor to afford a wedding, let alone two.
- Meanwhile, the local Mughal officials had their eye on the girls and a delay in their weddings would mean that they could be carried off any moment by the soldiers to be kept as slaves.
- Desperate to save his daughters, the Brahmin implored Dulla for help.
- Dulla vowed that he would make sure the two girls would be safely wed to their betrothed and told the Brahmin, "Your daughters are my daughters".
- He started a donation campaign in the neighbouring villages and people donated jaggery and grains in small and large amounts for the double wedding.
- On the wedding day, Dulla lit huge bonfires along the path to ensure safe passage for the wedding party.
- As Dulla's reputation spread across the neighbouring areas, the landlords grew bolder and stopped paying taxes, as the Faujdars themselves were unable to enter Dulla's territory.

- However, Dulla's rebellion came to an abrupt end when after repeated defeats on the battlefield, the Mughal officers offered to meet and make a peace treaty with him.
- But this negotiation meeting turned out to be a trap and the officers poisoned his food which made him unconscious and thus he was captured, and eventually hanged to death in 1599.

GS I: World geography

PINEAPPLE EXPRESS PHENOMENON

1. Context

Forecasters said the rain arriving in California is being caused by a “true Pineapple Express”- a specific example of a common atmospheric phenomenon that resembles a conveyor belt for moisture. California and other parts of the West Coast have been hit with a series of what meteorologists call atmospheric rivers- long, narrow regions in the atmosphere that transport most of the water vapor outside the tropics.

2. About Pineapple Express

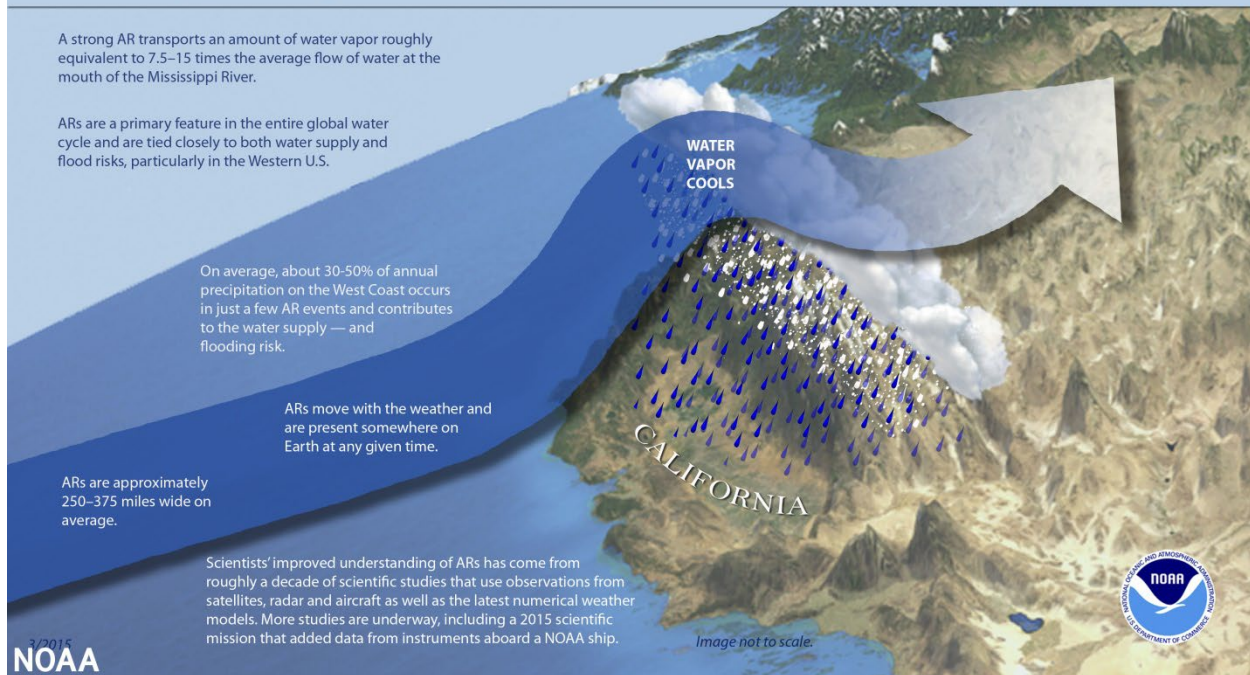
- The Pineapple Express is a well-known atmospheric river which brings moisture from the tropical Pacific, near Hawaii, to the West Coast of the United States and Canada. It is a specific example of a common atmospheric phenomenon that resembles a conveyor belt for moisture.
- These rivers in the sky occur often on the West Coast but can happen in other locations, including the eastern United States, where they often channel moisture from the Caribbean. And they carry a lot of moisture - enough water vapor to equal or sometimes exceed the average flow of the Mississippi River at the point where it flows into the Gulf of Mexico.
- When this moisture begins to interact with land, it can fall as rain or snow. Often, as is the case lately in California, the precipitation is abundant because these atmospheric rivers provide a continuous flow of moisture.

- Although atmospheric rivers come in different shapes and sizes, for one to be a “true Pineapple Express,” location matters.
- The tail end, where the moisture is pulled into the atmosphere, must start near Hawaii. Then the river must stretch continuously through the atmosphere to the U.S. West Coast.

3. The Science behind atmospheric rivers

The science behind atmospheric rivers

An atmospheric river (AR) is a flowing column of condensed water vapor in the atmosphere responsible for producing significant levels of rain and snow, especially in the Western United States. When ARs move inland and sweep over the mountains, the water vapor rises and cools to create heavy precipitation. Though many ARs are weak systems that simply provide beneficial rain or snow, some of the larger, more powerful ARs can create extreme rainfall and floods capable of disrupting travel, inducing mudslides and causing catastrophic damage to life and property. Visit www.research.noaa.gov to learn more.



Source: National Oceanic and atmospheric Administration

4. What happens as a Result?

- Whether an atmospheric river is a Pineapple Express or not, the result is something like a conveyor belt for precipitation.
- When the rivers are particularly strong or come back-to-back in what are called “atmospheric river families” the effects can be serious, like the extensive flooding that California is experiencing now.

GS II:Governance

WOMEN OFFICERS IN ARMY

1. Context

For the first time, women officers will be able to command troops in the Indian Army, and be assessed for their leadership skills. As many as 108 women officers in the Army are set to be cleared for the rank of Colonel (selection grade) by January 22 by a special selection board, which will make them eligible to command units and troops in their respective arms and services for the first time.

2. Women in Indian Armed Forces

- The Army, being the largest of the three services, has the largest number of women officers at 1,705 followed by 1,640 women officers in the IAF, and 559 in the Navy. This data was submitted by the government to Parliament last year.
- Women officers have been inducted into all branches of the Navy, and they will be eligible for permanent commission in the future.
- Women officers can command shore-based units and, as they join the service and become eligible for permanent commission, they would be able to command ships and air squadrons.
- The IAF has opened all branches for women officers, including the fighter stream and the new weapon systems branch.
- As they are granted permanent commission based on eligibility and vacancies, they will be eligible to command units in the future.
- All major countries including the United States, United Kingdom, Russia, and Israel, allow women in command positions of their national armed forces.

3. Why is it Important?

- About 108 women officers in the Army were cleared for the rank of Colonel by a special selection board, this will make them eligible to command units and troops in their respective arms and services.
- It will grant women officers parity with their male counterparts.
- Now with a long career in the Army, women officers will be considered for promotions, including to the rank of Colonel and beyond.
- Earlier only two branches; the Judge Advocate General (JAG) branch and the Army Education Corps granted permanent commissions to women in 2008.
- In 2020, the Supreme Court's order to grant permanent commissions to women Army officers opened the doors for promotion to women officers across all streams of the Army, except pure combat arms.

4. Why did their Colonel promotions come so late?

- An officer in the Army is promoted to the rank of Colonel only after serving between 16 and 18 years, based on certain criteria such as annual confidential reports and various courses.
- Women officers who were inducted into the Army were inducted as Short Service Commission (SSC) officers in 1992 and in the years after did not have the choice to opt for permanent commission.
- JAG and Army Education Corps were exceptions, where a permanent commission was opened for them in 2008.
- For other arms and services, women could not become permanent cadre, and had to retire much before they completed the service period that is mandatory to become a Colonel.

5. Supreme Court Orders in 2020

- In 2019, the Army changed its rules allowing SSC women officers to opt for permanent commission who would have otherwise retired after 14 years of service.
- However, this was not retrospective, and applied only to the batches of women officers starting their career in the Army in 2020.

- With the landmark Supreme Court judgment of February 2020, permanent commission was granted to women officers with retrospective effect.
- This opened the doors for their further growth and promotions in the Army, which has been of late opening leadership and higher management courses for women.

6. What is a Commanding Unit Mean?

Once promoted to a Colonel, an officer is eligible to command troops directly in the Army, which is an acknowledgment of the leadership qualities of the officer.

It is considered a coveted appointment because in no other rank- including higher ranks like Brigadier or Major General -does an officer interact directly with troops on the ground.

7. women officers in commanding units

- Women officers in many streams of the Army, including the Army Air Defence, Signals, Engineers, Army Aviation, Electronics and Mechanical Engineers, Army Service Corps, Army Ordnance Corps, and Intelligence Corps will be commanding units.
- They are still not eligible in core combat arms such as Infantry, Mechanised Infantry and Armoured Corps, as the Army is not open to women fighting wars at the borders as foot soldiers.
- Much of this resistance stems from past instances of male soldiers being taken as prisoners of war and tortured by the enemy.

GS II:Governance

POLYGRAPH TEST

1. Context

Days after a Delhi court agreed to a narco test, the Delhi Police approached a court to conduct a polygraph test on Aaftab Poonawala, suspected of killing his partner Shraddha Walkar, to help investigators find the missing weapon and other evidence in the murder case.

2. Polygraph Test

- A polygraph test is based on the assumption that physiological responses that are triggered when a person is lying are different from what they would be otherwise.
- Instruments like cardio-cuffs or sensitive electrodes are attached to the person, and variables such as blood pressure, pulse, respiration, change in sweat gland activity, blood flow, etc., are measured as questions are put to them.
- A numerical value is assigned to each response to conclude whether the person is telling the truth, is deceiving, or is uncertain.

3. Are such tests Accurate?

- Neither polygraph tests nor narco tests have been proven scientifically to have a 100% success rate, and remain contentious in the medical field as well.
- However, recently, investigating agencies have sought to employ these tests in investigation, and they are sometimes seen as being a “softer alternative” to torture or ‘third degree’ to extract the truth from suspects.

4. Legality of the test in India

- In ‘Selvi & Ors vs State of Karnataka & Anr’ (2010), a Supreme Court Bench comprising CJI ruled that no lie detector tests should be administered “except on the basis of the consent of the accused”.
- Those who volunteer must have access to a lawyer, and have the physical, emotional, and legal implications of the test explained to them by police and the lawyer, the Bench said.

- It said that the ‘Guidelines for the Administration of Polygraph Test on an Accused’ published by the National Human Rights Commission in 2000, must be strictly followed.
- The subject’s consent should be recorded before a judicial magistrate, the court said.

5. Constitutional Aspects

- The SC cited Article 20 (3) or Right against self-incrimination which states that no accused can be compelled to be a witness against himself.
- In the D.K. Basu vs. State of West Bengal case, 1997, the SC ruled that involuntary administration of the polygraph and narcos test will amount to cruel, inhuman, and degrading treatment in the context of Article 21 or the Right to Life and Liberty.
- It may also be violative of the Right to privacy which is a part of the Right to Life.
- The Indian Evidence Act, 1871 does not admit the results of these tests as evidence.
- The National Human Rights Commission in 1999 adopted a set of guidelines relating to the administration of the Polygraph Test which included consent, recording of the test, etc.

GS II:Governance

EXIT POLLS

1. Introduction

In India, results of exit polls for a particular election are not allowed to be published till the last vote has been cast.

2. About exit polls

- An exit poll asks voters which political party they are supporting after they have cast their votes in an election.
- In this, it differs from an opinion poll, which is held before the elections.

- An exit poll is supposed to give an indication of which way the winds are blowing in an election, along with the issues, personalities, and loyalties that have influenced voters.
- Today, exit polls in India are conducted by several organizations, often in tie-ups with media organizations.
- The surveys can be conducted face-to-face or online.

3. Impact of exit poll

- Some common parameters for a good or accurate opinion poll would be a sample size that is both large and diverse and a constructed questionnaire without overt bias.
- Sanjay Kumar, Director of the Centre for the Study of Developing Societies, has said “Without a structured questionnaire, the data can neither be collected coherently nor be analyzed systematically to arrive at vote share estimates.”
- Political parties often allege that these polls are motivated or financed by a rival party.
- Critics also say that the results gathered in exit polls can be influenced by the choice, wording, and timing of the questions and by the nature of the sample drawn.

4. Evolution of exit polls in India

In 1957, during the second Lok Sabha elections, the Indian Institute of Public Opinion conducted such a poll.

5. Rules governing exit polls in India

- The issue of when exit polls should be allowed to be published has gone to the Supreme Court thrice in various forms.
- Currently, exit polls can't be telecast from before voting begins till the last phase concludes.

GS II:Governance

GENERAL CONSENT FOR CBI

1.Context

The government of Chief Minister Eknath Shinde **restored general consent to the Central Bureau of Investigation (CBI)** to investigate cases in Maharashtra, reversing the decision of the state's previous Uddhav Thackeray-led Maha Vikas Aghadi (MVA) government.

CBI will no longer require the permission of the state government to open investigations in the state

2.Need for the Consent of states

- CBI is governed by The Delhi Special Police Establishment (DSPE) Act, 1946, and it must mandatorily obtain the consent of the state government concerned before beginning to investigate a crime in a state
- Section 6 of The DSPE Act (“Consent of State Government to exercise of powers and jurisdiction”) says: “Nothing contained in section 5 (titled “Extension of powers and jurisdiction of special police establishment to other areas”) shall be deemed to enable any member of the Delhi Special Police Establishment to exercise powers and jurisdiction in any area in a State, not being a Union territory or railway area, without the consent of the Government of that State.”
- The CBI’s position is in this respect different from that of the National Investigation Agency (NIA), which is governed by The NIA Act, 2008, and has jurisdiction all over the country

3.What is general consent for CBI

- The consent of the state government to CBI can be either case-specific or “general”
- General consent is normally given by states to help the CBI in the seamless investigation of cases of corruption against central government employees in their states
- This is essentially consent by default, which means CBI may begin investigations taking consent as having been already given

- In the absence of general consent, CBI would have to apply to the state government for its consent in every individual case, and before taking even small actions

4. Withdrawing the consent

Traditionally, almost all states have given CBI general consent. However, since 2015, several states have begun to act differently.

On March 4 this year, Meghalaya became the ninth state to have withdrawn consent to the CBI after Maharashtra, Punjab, Rajasthan, West Bengal, Jharkhand, Chhattisgarh, Kerala, and Mizoram

Out of these states, Maharashtra has now reversed its decision and restored general consent

GS II:Governance

KEN-BETWA RIVER LINKING PROJECT

1. Context

The Third Meeting of the Steering Committee of Ken-Betwa Link Project (SC-KBLP) was held on January 18 at Vigyan Bhawan, New Delhi under the Chairmanship of Secretary, DoWR, RD & GR, Ministry of Jal Shakti.

The meeting was attended by representatives of both the states of Madhya Pradesh and Uttar Pradesh and officials of various Central Ministries and NitiAayog.

2. About Ken-Betwa Link Project

- It is the first project under the National Perspective Plan for the interlinking of rivers.
- It envisages transferring water from the Ken river to the Betwa river, both tributaries of the Yamuna.
- The Ken-Betwa Link Canal will be 221 km long, including a 2 km long tunnel.

- The project has two phases with mainly four components.
- **Phase-I** will involve one of the components Daudhan Dam complex and its subsidiary units such as Low-Level Tunnel, High-Level Tunnel, Ken-Betwa Link Canal, and powerhouses.
- **Phase II** will involve three components Lower Orr Dam, Bina Complex Project, and Kotha Barrage.

According to the Jal Shakti Ministry, the project is expected to provide annual irrigation of 10.62 lakh hectares, supply drinking water to about 62 lakh people, and generate 103 MW of hydropower and 27 MW of solar power.

- As per an official statement issued after the Cabinet approval on Wednesday, the total cost of the Ken-Betwa link project has been assessed at Rs.44,605 crores at 2020-21 price levels.
- The Union Cabinet has approved central support of Rs.39,317 crores for the project, covering a grant of Rs.36,290 crores and a loan of Rs.3,027 crores.
- The statement further said that the project is proposed to be implemented in 8 years with “state-of-the-art technology.

3. Special Purpose Vehicle (SPV)

- A Special Purpose Vehicle (SPV) for the project is called Ken-Betwa Link Project Authority (KBLPA) will be set up to implement the project.
- The Centre has set in motion the process of creating the National Interlinking of Rivers Authority (NIRA) is an independent autonomous body for planning, investigation, financing, and implementation of the interlinking of river (ILR) projects in the country.
- The NIRA will have the power to set up SPV for individual link projects.

Ken-Betwa project agreement

On March 22, 2021, a memorandum of agreement was signed between the Ministry of Jal Shakti and the governments of Madhya Pradesh and Uttar Pradesh to implement the Ken-Betwa Link Project (KBLP).

4. Conceptualization of the project

- The idea of linking Ken with Betwa got a major push in August 2005, when a tripartite memorandum of understanding for the preparation of a detailed project report (DPR) was signed between the Centre and the two states.
- In 2008, the Centre declared KBLP a National Project. Later, it was included as part of the Prime Minister's package for the development of the drought-prone Bundelkhand region.
- In April 2009, it was decided that the DPR will be prepared in two phases.
- In 2018, a comprehensive DPR including phase-I, II, and additional areas proposed by Madhya Pradesh was also prepared.
- It was sent to Uttar Pradesh, Madhya Pradesh, and the Central Water Commission in October 2018.
- The memorandum of agreement was signed to implement the project.

5. Benefits from Project

- The project lies in Bundelkhand, a drought-prone region, which spreads across 13 districts of Uttar Pradesh and Madhya Pradesh.

According to the Jal Shakti Ministry, the project will be of immense benefit to the water-starved region, especially the districts of Panna, Tikamgarh, Chhatarpur, Sagar, Damoh, Datia, Vidisha, Shivpuri and Raisen of Madhya Pradesh, and Banda, Mahoba, Jhansi and Lalitpur of Uttar Pradesh.

- It will pave the way for more interlinking of river projects to ensure that scarcity of water does not become an inhibitor for development in the country.

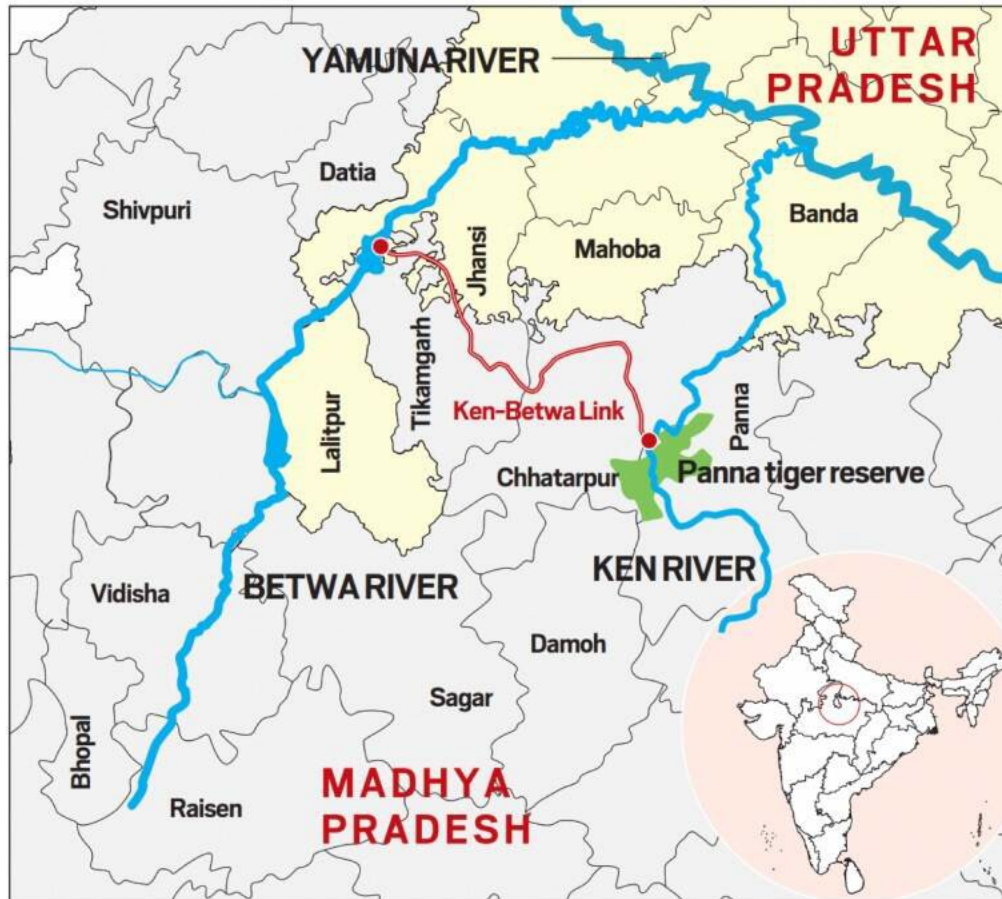


Image source: The Indian Express

6. The Panna Tiger Reserve

- According to the National Water Development Agency under the Jal Shakti Ministry, the Daudhan dam, to be built on the Ken river, will be 77 meters high and its gross capacity will be 2,853 million cubic meters.
- According to the NWDA, the reservoir of Daudhan dam will involve “a submergence of 9000 ha area, out of which 5803 ha comes under Panna Tiger Reserve.
- The latter includes 4141 ha of forest area which is about 7.6% of the total Panna Tiger Reserve area”.
- To mitigate adverse impacts on Panna Tiger Reserve, as decided by NTCA,

- Landscape Management Plan to decide mitigation strategy concerning KenBetwa Link entrusted to Wildlife Institute of India, Dehradun, and is in its final stage.
- In addition to above three wildlife sanctuaries, viz Nauradehi, Rani Durgawati of MP and Ranipur WLF of UP are planned to be integrated with PTR for the proper conservation of Wild Life under Tiger Reserve.

7. The concept of river linking in India

- In the past, several river-linking projects have been taken up.
- For instance, the Periyar Project, under which the transfer of water from the Periyar basin to the Vaigai basin was envisaged, was commissioned in 1895.
- Other projects such as Parambikulam Aliyar, Kurnool Cudappah Canal, Telugu Ganga Project, and Ravi-Beas-Sutlej too were undertaken.
- In the 1970s, the idea of transferring surplus water from a river to a water-deficit area was mooted by the then Union Irrigation Minister Dr. K L Rao.
- Himself an engineer, he suggested the construction of a National Water Grid for transferring water from water-rich areas to water-deficit areas.
- Later, Captain Dinshaw J Dastoor proposed a Garland Canal to redistribute the water from one area to another.
- However, the government did not pursue these two ideas further.
- It was not until August 1980 that the Ministry of Irrigation prepared a National Perspective Plan for water resources development envisaging interbasin water transfer.
- The NPP comprised two components: **Himalayan Rivers Development;** and **Peninsular Rivers Development.** Based on the NPP, the National Water Development Agency (NWDA) identified 30 river links 16 under the Peninsular component and 14 under the Himalayan Component.
- Later, the river-linking idea was revived during the Atal Bihari Vajpayee regime.
- The Ken-Betwa Link Project is one of the 16 projects under the peninsular component.

8. Clearances for a river-linking project

Various types of clearances are required, such as techno-economic clearance (given by the Central Water Commission);

1. Forest clearance, and environmental clearance (Ministry of Environment & Forests);
2. Resettlement and rehabilitation plan of tribal population (Ministry of Tribal Affairs) and
3. Wildlife clearance (Central Empowered Committee).

GS II:Governance

ASER SURVEY

1. Context

Since 2005, ASERs survey children in the age group of 6 to 14 to record trends in school enrollment, attendance, and reading and arithmetic abilities.

This year, nearly 7 lakh children across 616 districts were surveyed.

2. Pandemic effect on school enrollment

- Enrollment has gone up even in a period when schools were shut and we were already at very high levels before.
- It has risen further, including for older age groups, even though there was a fear that older girls especially may drop out.
- And then there is a big shift to government schools we'll need more analysis on what that means.
- Maybe it is temporary, but overwhelmingly, the voice of 7 lakh children and their families is that it is good to be back in school.
- That carries with it both a kind of momentum and a responsibility.
- Now that the students are there, we has to make sure their attendance rises.
- Attendance patterns haven't changed very much as schools have opened and there is a huge variation in attendance across the country.

3. Improvements in infrastructure

- Over time, there has been an improvement in infrastructure variables.

- The issue of enrollment is coming potentially from the fact that during Covid, the rural private schools couldn't do much because their economy was very fragile.
- But being attached to the State, government schools distributed textbooks they often distributed midday meals.
- The teachers were able to reach out in some form or fashion.
- There is a pull factor from our usual experience it is also the case that maybe family incomes have been hit, but everybody still believes that schooling must happen.
- Parental involvement and interest in education should be leveraged.

4. Increase in private tuition

- The reason private tuition went up is probably that it is more flexible.
- You could probably negotiate better with the provider that this month I don't have money, but next month I will.
- And so parents felt that schools are closed we are not sure when they will open, but we need to get some extra help.
- In a way, They can think about this as local organizing.
- Tuition can mean many things, but it is also a function of parents wanting more for their children and going wherever possible to get it.

5. NIPUN Bharat

- The given schemes like National Initiative for Proficiency in Reading with Understanding and Numeracy (NIPUN) Bharat and Foundational Literacy and Numeracy (FLN) mission, received any guidelines, and has any teacher been trained?
- Almost 80 percent of the schools received guidelines, teachers have been trained.
- This means that the seriousness with which governments are also sort of pushing on NIPUN Bharat is quite high.
- It makes the case for how to keep the momentum going.

6. Decline in learning levels

- There is a decline in learning levels since 2018, but again it varies across the country.
- And strangely to understand from experts why the drop in reading is more than in math.
- Is it because math, especially at such a basic level, is used by people much more? It's hard to say, but we can see that recovery is possible.
- The big point that would be useful to emphasize is NIPUN Bharat's goals are that every child in Class three is at grade level, which means they can read or can do basic arithmetic.
- The number of such children before Covid was around 30 percent and now is somewhere for reading around 20 percent and math around 25-26 percent.

7. Integration between the Anganwadi and the school

- Integration between the Anganwadi system and school system is urgently needed because the work starts there.
- There are Anganwadi everywhere and their enrollment has gone up.
- The Anganwadi system is generally less well-funded at least for the education part.
- And the kids who are past Class 4 and 5 now. They to have undergone learning losses.
- There's a case for a big catch-up to be done there as well.
- In the next year's plans, because most states will now go to their annual work plans for the next year, hoping that these points can be considered.

8. The way forward

- In the past 10 years, we've seen improvement but it has been in small bits.
- So it means that we need to shake up things.
- Therefore, what we are going to do as a school system, as a family system, is to say that every year big jumps need to be taken.
- It is a critical thing for improving the productivity of the country.
- Business as usual is not going to work.
- Again, it's not a new message, but it's a message that needs to be reiterated.

- And perhaps because of the new education policy and the fact that after Covid, everybody's mentality is slightly different, it is worth reinforcing.

GS II:Governance

MIGRANT VOTING

1. Context

The Election Commission of India (ECI) could not demonstrate a prototype of its new Remote Electronic Voting Machine (RVM), which would allow domestic migrants to vote in national and regional elections after the Opposition raised concerns about the logistical and administrative challenges of remote voting.

2. About EVMs and VVPAT's

- EVMs started being used on a larger scale in 1992 and since 2000, have been used in all Lok Sabha and State Assembly elections.
- There have been three iterations of the machine with improved features, the latest one being the **M3 model** which was manufactured from 2013 onwards.
- Multiple political parties in 2010 approached the ECI to come up with a mechanism that could help verify that the EVM had recorded the vote correctly as intended by the voter.
- The ECI, thus, developed along with two Public Sector Undertakings (PSU), the Voter Verified Paper Trail Audit (VVPAT) machine to have a paper trail in the voting process.
- The use of VVPATs has become universal in elections since mid-2017. The current EVM setup has a Balloting Unit (BU) which is connected to the VVPAT printer, both of which are inside the voting compartment.

- The VVPAT is connected to the Control Unit (CU), which sits with the Presiding Officer (PO) and totals the number of votes cast on its display board.
- Only once the PO presses the ballot button on the CU, does the BU get enabled the voter to cast her vote by pressing the key corresponding to the candidate on the ballot paper sheet pasted on the BU.
- The VVPAT, which is essentially a printing machine, prints a slip with the poll symbol and candidate name once the voter presses the key on the BU.
- This slip is visible to the voter on the VVPAT's glass screen for seven seconds after which it gets dropped off in a box inside the VVPAT.
- Once a vote is cast the BU becomes inactive till the PO schedules the next vote by enabling it again from the CU.

3. Concerns about EVMs

Concerned civil society organizations, civil servants who have overseen elections, academicians, journalists, former judges, and political figures formed the Citizens' Commission on Elections (CCE) in 2020, which conducted analysis, recorded depositions from national and international field experts, and released a report in 2021 titled, 'Is the Indian EVM and VVPAT System Fit for Democratic Elections?'

3.1 Report

- The report highlighted the widely recognized '**democracy principles**' to be adhered to while conducting public elections.
- It stated that the election process should not only be free and fair but "**also be seen to be free and fair**" meaning instead of being told to trust the process the general public should be provided with provable guarantees to facilitate this trust.

The report points out that the details of the EVM design, prototype, software, and hardware verification are not publicly available for technical and independent review, rendering it available only for a black-box analysis, where information

about its inner workings is not accessible.

- However, the ECI says that, unlike other countries, Indian EVMs are standalone, are not connected to the internet, and have a one-time programmable chip, making tampering through the hardware port or a Wi-Fi connection impossible.
- Multiple computer scientists have demonstrated that this claim does not stand up to scrutiny as it does not take into account ‘side-channel’, insider fraud, and trojan attacks.

4. EVM Manufactures

- The ECI sends the EVM software to two foreign chipmakers (in the U.S. and Japan) to burn into the CPU and the manufactured chips are then sent to India for assembly into machines by the two PSUs (BEL and ECIL).
- This means that the manufacturers cannot read back the contents of the software to ensure its integrity is intact.
- Functionality tests done by manufacturers can only reveal if the machine is working properly.

5. Issues with VVPAT

- For the voting process to be verifiable and correct, it should be machine-independent or software and hardware independent, meaning the establishment of its veracity should not depend solely on the assumption that the EVM is correct.
- A simple way to keep the process software or hardware independent is to keep another record, which crudely or weakly is done by the VVPAT, which, he added, has its own set of problems.
- The current VVPAT system is not voter verified in its full sense, meaning, while the voter sees their vote slip behind the VVPAT’s glass for seven seconds, it does not mean they have verified it.

- That would happen if the voter got the printout in their hand, was able to approve it before the vote is finally cast, and was able to cancel if there is an error.
- The “voter should have full agency to cancel a vote if not satisfied; and that the process to cancel must be simple and should not require the voter to interact with anybody”.
- Under the current system, if the voter disputes what they have seen behind the screen, they are allowed a test vote in the presence of an election officer, and if the outcome of the test vote is correct, the voter can be penalized or even prosecuted.
- Additionally, the assurance given by the ECI that the EVM-VVPAT system is not connected to any external device has been questioned by former civil servants and multiple studies.
- For the VVPAT to be able to generate voting slips, the symbols, names and the sequence of the candidates need to be uploaded on it which is done by connecting it to a laptop.
- To create a VVPAT sheet on the laptop an application is either downloaded from the ECI server or copied from a local device.
- It is then uploaded to another device or the Symbol Loading Unit (SLU) through a nine-pin cable, which in turn is connected to the VVPAT for upload.

6. Safeguards of EVMs

- The ECI has said time and again that EVMs and their systems are “**robust, secure, and tamper-proof**” owing to the technical and institutional safeguards in place.
- The ECI claims that the safeguards such as the sealing of machines with signatures of polling agents, first-level checks randomization of machines and a series of mock polls before the actual voting cannot be circumvented.
- However, domain experts and former observers have shown that vulnerabilities can arise.
- For example, since it is “known upfront that a fixed number of votes cast at the beginning of the polls in each polling station”, will be part of the third mock poll, “theoretically a hack can easily bypass the first few votes,

thereby preventing detection of foul play as every key press in the EVM is date and time stamped”.

6. RVM for migrant voting

- The EC states in its concept note that the Multi-Constituency RVM for migrant voting will have the same security system and voting experience as the EVM.
- This essentially means that the challenges mentioned above concerning the current EVMs will persist when it comes to the RVMs.
- Besides, the Commission says the RVM can handle multiple constituencies (up to 72) from a single remote polling booth.
- For this instead of a fixed ballot paper sheet, the machine has been modified to have an electronic dynamic ballot display that will present different candidate lists corresponding to the constituency number of the voter read by a constituency card reader.
- The ECI has added a digital public display unit or a monitor to act as an interface between the constituency card reader and the BU display.
- As for the commissioning process of the machine, the electronic ballot will be prepared by the Returning Officers (ROs) of home constituencies of voters and forwarded to the remote RO for uploading in the SLU.
- At what point is the unit connected to an external device for symbol loading, and while the keys on the BU are mapped to the serial numbers.

7. The Wayforward

- Besides machine-related concerns, the logistical and administrative challenges that remote voting would present.
- These include questions on how voter registration will take place in remote locations, how names will be removed from the electoral rolls of the home constituency, how remote voting applications will be made transparent, etc.

GS II: International reports

CHINA POPULATION FALLS

1. Context

China's population, according to its National Bureau of Statistics, fell to 1,411.8 million in 2022, from 1,412.6 million in the previous year. An absolute decline in population is a landmark event, for a country that is soon set to be surpassed-if it has not already by India as home to the most number of people.

2. India's current demographic scenario

- India has not conducted an official headcount Census after 2011. But going by the United Nations projections, its population stood at 1,417.2 million in 2022 (more than China's) and is expected to reach 1,428.6 million in 2023.
- The potential implications, especially economic, of China's shrinking population and India's surging ahead, are huge.
- India's population was 361 million according to the 1951 Census which is at 1.4 billion today.
- The UN World Population Prospects (WPP), 2022, forecasts India becoming the most populous country by 2023, surpassing China, with a 140 crore population. India currently has 17.5% of the world's population.

3. Mortality and Fertility

3.1 Mortality

- Mortality falls with increased education levels, public health and vaccination programmes, access to food and medical care, and provision of safe drinking water and sanitation facilities.
- The crude death rate (CDR)- the number of persons dying per year per 1,000 population- was 23.2 for China and 22.2 for India in 1950.
- It fell to single digits for China first in 1974 (to 9.5) and for India in 1994 (9.8), and further to 7.3-7.4 for both in 2020.

- Another mortality indicator is life expectancy at birth. Between 1950 and 2020, it went up from 43.7 to 78.1 years for China and from 41.7 to 70.1 years for India.

3.2 The total fertility rate (TFR)

- Total fertility rate is the number of babies an average woman bears over her lifetime.
- Total fertility rate (TFR) was as high as 5.8 for China and 5.7 for India in 1950.
- The TFR has fallen sharply for India in the past three decades.
- Between 1992-93 and 2019-21, it came down from 3.4 to 2; the fall was especially significant in the rural areas.
- A TFR of 2.1 is considered as “replacement-level fertility”. Simply understood, a woman having two children replaces herself and her partner with two new lives.
- Since all infants may not survive, the replacement TFR is taken at slightly above two.

4. If India’s TFR is already below-replacement, why is its population still increasing?

- The TFR is the average number of births by women aged 15-49 based on surveys for a particular period/year.
- Populations can keep growing even with TFRs falling. Degrowth requires TFRs to remain below replacement levels for extended periods.
- The effects of that -fewer children today becoming parents tomorrow and procreating just as much or less- may reflect only after a couple of generations.
- China’s TFR dipped below replacement first in 1991, which was almost 30 years before India’s. Recall that the CDR decline below 10, too, happened two decades earlier for China.
- Not surprising, China’s population more than doubled from 544 million in 1950 to 1.1 billion in 1987 and peaked in 2021. It took over 30 years for below-replacement fertility rates to translate into negative population growth.

5. Why Population falls in China?

- China's TFR, according to its 2020 Census, was 1.3 births per woman - marginally up from the 1.2 in the 2010 and 2000 censuses, but way below the replacement rate of 2.1.
- China officially ended its one-child policy, introduced in 1980, from 2016.
- The real crisis for China, however, is the decline in its population that is of prime working age.
- If there is a large population that's able to work and earn, not only will there be relatively fewer people to support those too old or too young but also greater tax revenues and savings potential from the generation of incomes.
- But that cycle has started to reverse, and the share of China's working-age population is projected to fall below 50% by 2045.

6. India has an opportunity

- Reduced labour requirement in agricultural operations and smaller holdings make it that much less necessary to have large families working the land.
- But even with fertility rate declines, India's population is projected to expand and de-grow only after touching 1.7 billion about 40 years from now.
- More important is the working-age population: its share in the overall population crossed 50% only in 2007, and will peak at 57% towards the mid-2030s.
- Overall, India has a window of opportunity well into the 2040s for reaping its "demographic dividend", like China did from the late 1980s until up to 2015. That is, of course, contingent upon the creation of meaningful employment opportunities for a young population.

GS II: Polity

HISTORY OF TAMIL NADU

1. Context

Tamil Nadu Governor RN Ravi's remarks suggesting changing the name of the state to '**Tamizhagam**' last week triggered a controversy, with several political parties, including the Dravida Munnetra Kazhagam (DMK), condemning his speech and recalling the struggle to rename the Madras State to Tamil Nadu.

It was on January 14, 1969 that the Madras State was officially renamed Tamil Nadu, under the then Chief Minister CN Annadurai.

2. History of Tamil Nadu

- Social activist E V Ramasamy, fondly known as '**Periyar**' (1879-1973) had started the Self Respect Movement in 1925 to "**redeem the identity and self-respect**" of Tamils.

He envisaged an independent Dravida homeland of Dravida Nadu (In Tamil, Nadu means country), comprising Tamil, Malayalam, Telugu and Kannada speakers, and launched a political party called the Dravidar Kazhagam (DK).

- Periyar was said to be both anti-caste and anti-religion, advocated for major social reforms, including equality for women in society and supporting birth control for women for their health and well-being.
- He also opposed the imposition of Hindi and emphasised the need for a cultural identity of the Tamil nation.

2.1. Self-Respect Movement

- In 1938, the Justice Party and Self-Respect Movement came together and in 1944, the new outfit was named **Dravidar Kazhagam**.
- DK was anti-Brahmin, antiCongress, and anti-Aryan (read North Indian) and launched a movement for an independent Dravida nation.
- Post-independence in 1947, the party continued to demand a '**Dravida Nadu**'.

- After Periyar refused to contest in elections, in 1949, Annadurai split from Periyar due to ideological differences and his DMK joined the electoral process.
- The DMK's platforms were social democracy and Tamil cultural nationalism, but Annadurai was silent on Dravida Nadu.
- In 1967, Annadurai became the first Chief Minister of Madras State.
- He then chose to move away from the demand of an independent Dravida Nadu and instead decided to work for greater autonomy for Tamil Nadu and better cooperation among the southern states.
- How Madras State became Tamil Nadu Formerly called Madras Province, it had been renamed Madras State on January 26, 1950.
- The name Madras State did not become Tamil Nadu overnight.
- In 1953, several Tamil scholars including Ma. Po. Sivagnanam raised the demand in the Madras Legislative Council.

2.2. Sankaralinganar's indefinite fast

- In 1956, Congress leader K P Sankaralinganar began an indefinite fast.
- One of his demands was the renaming of the state to Tamil Nadu.
- It is noted that Sankaralinganar fasted for 76 days, which resulted in his death on October 13, 1956.
- Sankaralinganar's death further spurred on the fight for renaming the state.
- On May 7, 1957, the DMK brought in a name change resolution in the Assembly.
- Madras Musings noted that there were 42 votes in favour of the resolution and it was defeated.
- Then on January 30, 1961, the Socialist Party MLA Chinna Durai brought a resolution for a name change.
- Chinna Durai had requested ruling party members to vote in favour and asked for support from the Congress party, which led to then CM Kamarajar postponing the discussion on it for a month.
- In response, the DMK boycotted the Assembly for three days.
- A month later, the resolution failed again after it was tabled, without the support of the Congress party.

- The then State Finance Minister C Subramaniam offered a compromise and said that the state government will use the term Tamil Nadu in its communication in Tamil.
- He also said that the ‘**Madras state**’ term can be used in communications in English.

2.3. A debate in Parliament

- Around the same time, Member of Parliament and Communist leader from West Bengal, Bhupesh Gupta, moved a Bill in Parliament for renaming Madras State as Tamil Nadu.
- At that time, CN Annadurai, who was a Rajya Sabha member, supported the move.
- Speaking in favour of the Bill, Annadurai argued that a capital city (Madras) cannot become the name of a state and he also cited that the name Tamil Nadu had been used in ancient literature.

2.4. A resolution in the State Assembly

- Cut to six years later, on July 18, 1967, CM Annadurai prepared a resolution in the State Assembly.
- During the debate, Opposition Leader P G Karuthiraman said, “**Madras is a name in world history; Tamil Nadu will take time to reach the same heights**”.
- So, he suggested that the name ought to be ‘**Tamil Nadu-Madras State**’.
- But, after consenses, Tamil Nadu was accepted as the name and a resolution passed unanimously.
- Annadurai left no ambiguity about the new name and its meaning, saying, “It is a state in India and it is not a separate country.”

To mark the name change, Anna, said “**Tamil Nadu**” three times. During his speech, the chief minister said, “**We are not an independent country because of the name change, our State will be a part of India.**” Parties including Congress welcomed the resolution.

- Since the renaming needed a Constitutional amendment, both Houses of the Parliament approved the Bill in November and December 1968 respectively.

3. The need for ‘Tamil’ identity and formation of Tamil Nadu Day

- The state government later issued a gazette notification to bring the name change into effect on January 14, 1969.
- The need for ‘Tamil’ identity and formation of Tamil Nadu Day Since 1967, as power alternated between the DMK and AIADMK, the preservation of Tamil culture and language has been a major focus area of successive state governments.
- The state opposed the **three-language formula**, which meant Hindi would be taught in schools of South Indian states, in 1966, and has continued to protest the “**imposition**” of Hindi in education.
- Annadurai had said in Rajya Sabha in May 1962: “We from the South, especially from Tamil Nadu, while we are sitting here, find Hon. members though they know English, speaking in Hindi and getting answers in Hindi.
- At that time I find a twinkle in their eye, as if to say ‘You people, unless you learn Hindi, you have to keep quiet’.
- The demand for Dravida Nadu was gradually replaced by a demand for greater autonomy in education and cultural practices.
- In 2018, Stalin, who was then DMK working president and Leader of Opposition in the Tamil Nadu Assembly, said that if a demand was made for a Dravida Nadu comprising the southern states, he would support it.
- He subsequently clarified that he did not suggest a revival of the movement, but added: “Anna gave up the idea for Dravida Nadu and clarified that there were reasons for its creation.
- Anna has been proved right, especially now that we see how the southern states are being ignored by the BJP government.”
- The AIADMK government had previously declared November 1 as Tamil Nadu day.
- Edappadi K Palaniswami, as Chief Minister in 2019, had announced that Tamil Nadu Day would be observed on November 1 following requests from various quarters then.
- However, in 2021, Tamil Nadu Chief Minister M K Stalin declared July 18 as Tamil Nadu formation day.

GS II: Governance

NATIONAL COMMISSION FOR PROTECTION OF CHILD RIGHTS (NCPCR) DRAFT GUIDELINES

1. Why in news?

The National Commission for Protection of Child Rights (NCPCR) has come up with draft guidelines on the preliminary assessment of whether certain minors are to be tried under law as adults in particular cases, under the Juvenile Justice (Care and Protection of Children) Act

2. Juvenile justice act

- Earlier, all children under the age of 18 were considered minors by the law, but through an amendment in 2015, a provision was added to the JJ Act for trying a child in conflict with the law as an adult.
- Under this, a child in the age group of 16-18 years could be tried as an adult in case of heinous offences
- Section 15 (1) of the Act states that the Juvenile Justice Board shall conduct a preliminary assessment to determine whether to try such a child as an adult or a minor
- The Act directs that the Board shall consider the mental and physical capacity of the child for committing the alleged offence, the ability to understand the consequences of the offence, and the circumstances in which the offence was committed
- It states that the Board can take the assistance of experienced psychologists or psychosocial workers or other experts
- The Act also gives a disclaimer that the assessment is not a trial, but is only to assess the capacity of the child to commit and understand the consequences of the alleged offence

- After the assessment, the Board can pass an order saying there is a need to try the said child as an adult and transfer the case to a children's court with the relevant jurisdiction
- If tried as a minor, the child could be sent to a special home for a maximum of three years
- If tried as an adult, the child can be sentenced to a jail term, except being sentenced to death or life imprisonment without the possibility of release

3.NCPCR guidelines

3.1.Physical capacity of the child:

To determine the child's 'locomotor' abilities and capacities, particularly with regard to gross motor functions such as walking, running, lifting, throwing...such abilities as would be required to engage in most antisocial activities.

3.2.Mental capacity:

To determine the child's ability to make social decisions and judgments. It also directs assessments pertaining to mental health disorders, substance abuse, and life skills deficits

3.3.Circumstances in which the offence was allegedly committed:

Psychosocial vulnerabilities of the child. This is to include life events, any trauma, abuse, and mental health problems, stating that the offence behaviour is a cumulative consequence of a lot of other circumstances.

3.4.Ability to understand the consequences of the alleged offence:

To determine the child's knowledge or understanding of the alleged offence's social, interpersonal and legal consequences

These include what others will say or perceive him, how it might affect his personal relationships and the knowledge of relevant laws, respectively.

4.About NCPCR

- National Commission for Protection of Child Rights is a statutory body constituted under Section 3 of the Commission for Protection of Child Rights (CPCR) Act, 2005 to protect the child rights and other related matters in the Country
- The Commission is further mandated to monitor the proper and effective implementation of Protection of Children from Sexual Offences (POCSO) Act, 2012; Juvenile Justice (Care and Protection of Children) Act, 2015 and Right to Free and Compulsory Education (RTE) Act, 2009

- In one of the functions laid down under Section 13 of the CPCRC Act, 2005, the Commission has been assigned with the function to examine and review the safeguards provided by or under any law for the time being in force for the protection of child rights and recommend measures for their effective implementation
- The Commission also has the powers of Civil Court trying a suit under Section 14 of CPCRC Act, 2005 and Code of Civil Procedure, 1908

GS II:Governance

PRAVASI BHARATIYA DIVAS

1. Why in news?

The 17th edition of the Pravasi Bharatiya Diwas (PBD), or the day for Non-Resident Indians (NRIs) that is commemorated annually on January 9, was marked by the Central government with **events in Indore**, Madhya Pradesh

Over 3,500 diaspora members from nearly 70 different countries registered for the PBD Convention, according to its press release.

2. History of "Pravasi bhartiya divas"

- A High-Level Committee on Indian Diaspora, headed by jurist and Parliamentarian LM Singhvi, had recommended in January 2002 that the government must renew and strengthen linkages of overseas Indians to their place of origin, and with each other
- The committee recommended that a Pravasi Bharatiya Bhavan should be set up to emerge as the focal point for networking between India and its overseas Indian community; and as a suitable place which to commemorate the stories of the Indian Diaspora.
- **January 9 was selected as it was the date when Mahatma Gandhi returned to India from South Africa in 1915.**
- Over the years, he has often been described as the first non-resident Indian of the most famous NRI by various politicians

- An award called The Pravasi Bharatiya Samman Award is given out as part of the programme

“It is the highest honour conferred on a Non-Resident Indian, Person of Indian Origin; or an organisation or institution established and run by them.”

A jury-cum-awards committee, with (the) Vice President as the chairman and External Affairs Minister as the vice-chair and other distinguished members from various walks of life considered the nominations...and unanimously selected the awardees

3.Key takeaways

- In 2023, it was awarded by President Droupadi Murmu to 27 people based in countries such as Australia, Ethiopia, Israel, Japan and more
- The Chief Guest of the event and the President of Guyana, Dr. Mohamed Irfaan Ali, was also awarded
- Also on the list of awardees was Dr Darshan Singh Dhaliwal, a US-based NRI who was sent back from Delhi’s IGI Airport on the night of October 23-24, 2021, over his alleged involvement in organising a langar for protesting farmers at Delhi borders against the three farm laws
- A Commemorative Postal Stamp ‘Surakshit Jaayen, Prashikshit Jaayen’ was released to underline the importance of safe, legal, orderly and skilled migration
- A first-ever digital Exhibition for the event, on the theme “Azadi Ka Amrit Mahotsav – Contribution of Diaspora in Indian Freedom Struggle” was held

4.About Indian Diaspora

- The term diaspora traces its roots to the Greek diaspeiro, which means dispersion
- The Indian diaspora has grown manifold since the first batch of Indians were taken to counties in the east pacific and the Caribbean islands under the ‘Girmitiya’ arrangement as indentured labourers
- The 19th and early 20th centuries saw thousands of Indians shipped to those countries to work on plantations in British colonies, which were reeling under a labour crisis due to the abolition of slavery in 1833-34

- As part of the second wave of migration, nearly 20 lakh Indians went to Singapore and Malaysia to work in farms
- The third and fourth wave saw professionals heading to western countries and workers going to the Gulf and west Asian countries in the wake of the oil boom.

5. Classifications of the Indian Diaspora

Overseas Indians are classified into three categories: Non-Resident Indians (NRI), Persons of Indian Origin (PIOs), Overseas Citizens of India (OCIs)

1. PIO refers to a foreign citizen (except a national of Pakistan, Afghanistan, Bangladesh, China, Iran, Bhutan, Sri Lanka and Nepal) who at any time held an Indian passport, or who or either of their parents/ grandparents/great grandparents was born and permanently resided in India as defined in Government of India Act, 1935, or who is a spouse of a citizen of India or a PIO
2. OCI card was given to a foreign national who was eligible to be a citizen of India on January 26, 1950, was a citizen of India on or at any time after January 26, 1950, or belonged to a territory that became part of India after August 15, 1947. Minor children of such individuals, except those who were a citizen of Pakistan or Bangladesh, were also eligible for OCI cards
3. NRIs are Indians who are residents of foreign countries

The PIO category was abolished in 2015 and merged with the OCI category. However, existing PIO cards are valid till December 31, 2023, by which the holders of these cards have to obtain OCI cards.

6. Statistics

- i. According to an August 22, 2022 report of the Parliamentary committee on external affairs, as on December 31, 2021, there were 4.7 crore Indians living overseas
- ii. The number includes NRIs, PIOs, OCIs, and students. Excluding students, the number stands at 3.22 crore, including 1.87 crore PIOs and 1.35 crore NRIs
- iii. According to the World Migration Report, prepared by the International Organisation for Migration under the United Nations, India has the largest

emigrant population in the world, making it the top origin country globally, followed by Mexico, Russian and China

- iv. Numbers shared by the government in Parliament in 2022 show that the geographical spread of the Indian diaspora is vast.

The countries with over 10 lakh overseas Indians include United States of America (44 lakh), United Kingdom (17.6 lakh), United Arab Emirates (34 lakh), Sri Lanka (16 lakh), South Africa (15.6 lakh), Saudi Arabia (26 lakh), Myanmar (20 lakh), Malaysia (29.8 lakh), Kuwait (10.2 lakh) and Canada (16.8 lakh)

7. Remittances

Remittances, according to the World Bank, are a vital source of household income for low- and middle-income countries like India

The latest World Bank Migration and Development Brief, released in November 2022, said, “For the first time a single country, India, is on track to receive more than \$100 billion in yearly remittances.”

The World Migration Report notes that India, China, Mexico, the Philippines and Egypt are (in descending order) among the top five remittance recipient countries, “although India and China were well above the rest”.

In 2020, the two neighbours received the largest amounts of international remittances in Asia, with a combined total of more than \$140 billion

IT SECTOR

1. Context

On Thursday, India’s tech blue chip Infosys reported a 13.4 percent rise in its consolidated net profit for the quarter ending December 2022.

2. Key Points

- Earlier this week, the largest IT company in the country, Tata Consultancy Services Ltd (TCS), posted an 11.02 percent growth in profit for the quarter.

- Tech companies, thus, appear to be withstanding the vagaries of the economic slowdown, which has been triggered by high inflation, high-interest rates, and falling growth rates across the globe.
- Infosys's operating margins in the third quarter remained resilient due to the cost optimization benefits that have offset the impact of seasonal weakness in operating parameters.
- Attrition also reduced meaningfully during this quarter and is expected to decline further in the near term, which is a positive development for the company.
- While the global economy was hit by high inflation and interest rates, tech companies maintained their growth tempo in overseas markets too.
- Among major markets, North America and the UK led with 15.4 percent growth, while Continental Europe grew 9.7 percent.
- In emerging markets, Latin America grew 14.6 percent, India grew 9.1 percent, Asia Pacific grew 9.5 percent and Middle East & Africa grew 8.6 percent, according to TCS.

3. The outlook for the IT sector

- Globally, experts anticipate greater uncertainty in consumer technology as Covid-19 tailwinds continue to abate, energy prices rise in Europe and global economic activity slows.
- Areas such as consumer IT hardware, gaming, e-commerce, and digital advertising may have a slightly longer road to recovery.
- They expect consumer discretionary spending to weaken as unemployment rises and as excess household savings that had built up during the pandemic decline amid persistently high inflation.
- This began to play out during the second half of 2022, which led to negative estimate revisions across the semiconductor, consumer personal computer (PC), gaming, and internet industries.

4. Fitch Ratings

- Fitch Ratings said the Indian IT sector outlook for 2023 is stable. "We expect Indian IT services companies' revenue growth to slightly exceed

global competitors' in 2023 and 2024, as customers will most likely prefer lower-cost IT vendors amid an economic downturn.

- In the global financial crisis of 2007-2010, Indian IT companies' US dollar-denominated revenue expanded at a CAGR of 16 percent outperforming global peers such as Accenture plc, Capgemini SE, and Atos SE, which all reported flat to declining revenue,”

5. The shadow over the IT sector

- Two factors that are likely to cast a shadow over the sector are high inflation and a sharp increase in interest rates over the last four quarters.
- This has forced companies to reduce their IT budgets amid talks of recession.
- While high inflation and rising interest rates are increasing the cost of capital for companies, they are also eating into the disposable incomes of individuals and forcing them to reduce their spending amid a weak macroeconomic outlook.
- This is directly impacting the outlook for technology companies whether it is about their products, services, or ad revenues, and is thereby impacting their share prices.
- As for Indian IT majors, an adverse macroeconomic situation in the US and Europe will keep the order flows, business growth, revenue, and share prices dampened.

6. Tech firms faring on the stock market

- The valuation still looks attractive compared to historical averages and we believe
- that limited downside risks are going forward.
- The stock market performance also clearly reflects the concerns that the markets have regarding IT companies, over slowdown concerns in the US and Europe, and its impact on Indian IT firms.
- In the period between April 1, 2022, and January 12, 2023, while the benchmark Sensex at BSE has risen 1.14 percent, the IT index at BSE is down 21.28 percent.

- Leading IT companies TCS (-18 percent), Infosys (-24 percent), and HCL Technologies (-21 percent) are already down from their 52-week high levels.
- There has been a sharp decline in holdings of IT companies by mutual fund and foreign portfolio investors.
- However, IT companies like TCS and Infosys have also announced buybacks at good prices for the shareholders.
- IT and technology companies witnessed a sharp surge in valuations during Covid times as everything was turning digital and there was optimism around their Amid growing concerns about an economic slowdown, even shares of top US tech companies are yet to reach that high again.
- If the US tech giants are struggling, it is unlikely that the Indian IT sector, which is largely dependent upon business and revenue from the US and other developing economies, will go unscathed.

Experts, however, feel that as prices of IT companies have witnessed correction on account of growing concerns in the US and Europe, the softening in inflation and stability in interest rates will result in upwards revision in the share prices of these companies.

- So, it would not be a bad idea to invest in them on dips in leading IT majors, for the medium to long term.

GSIII: Economy

RBI DIVIDEND

1. Context

On February 18, the RBI Board meeting in New Delhi approved an interim dividend payout of Rs 28,000 crore to the government, which expected to help keep the fiscal deficit at the projected 3.4 percent of GDP for 2018-19.

It is the second year running the RBI has paid an interim dividend to the government and approved an interim payout of Rs 10,000 crore last year.

2. RBI generates profits (or surplus)

- A central bank's income typically comes from the returns it earns on its foreign currency assets, which could be in the form of bonds and treasury bills of other central banks or top-rated securities, deposits with other central banks, the interest it earns on its holdings of local rupee-denominated government bonds or securities.
- When lending to banks for very short tenures (such as overnight) and management commission on handling the borrowings of state governments and the central government.
- The RBI buys these financial assets against its fixed liabilities as currency from the public and deposits issued to commercial banks on which it does not pay interest.
- A central bank's expenditure is mainly on printing currency notes and staff on commissions to banks for undertaking transactions on behalf of the government across the country and to primary dealers, including banks, for underwriting some of these borrowings.
- The central bank's total costs, including expenditure on printing and commissions is only about a seventh of its total net interest income, implies that it generates a large surplus.

3. The government claim on the RBI's profits/surplus

- The Government of India is the sole owner of the RBI. Like many other global central banks are owned by the governments of their countries.
- The government can make a legitimate claim to this surplus.
- By its role as the manager of the country's currency, the RBI generates more surplus than the entire public sector put together.
- The former RBI Governor Raghuram Rajan put it, belongs entirely to the country's citizens. The RBI has been setting aside what is needed to be retained as equity capital to maintain its creditworthiness and pay out the remaining surplus to the government?

4. About RBI

- The RBI isn't a commercial organization like the banks and other firms the government owns or controls.
- It was promoted as a private shareholders' bank in 1935 with a paid-up capital of Rs 5 crore, but the government nationalized it in January 1949, making the sovereign the “**owner**” of RBI.

The central bank, therefore, transfers its “**surplus**” the excess of income over expenditure to the government under the provisions Section 47 of the Reserve Bank of India Act, 1934: “After making provision for bad and doubtful debts, depreciation in assets, contributions to staff and superannuation funds and for all other matters for which provision is to be made by or under this Act or which are usually provided for by bankers, balance of the profits paid to the Central Government.”

- This is done in early August by the central board of the RBI after the completion of the bank's July-June accounting year.

5. Additional dividends

- The much of the surplus the RBI generates comes from the interest on government assets from the capital gains it makes off other market participants.
- When this paid to the government as a dividend the RBI is putting back to the system the money it has made from it.
- There is no additional money-printing or reserve-creation involved.
- But when the RBI pays an additional dividend to the government, it has to create additional permanent reserves are to print money.
- To accommodate the special dividend the RBI would have to withdraw an equivalent amount of money from the public by selling government bonds in its portfolio.

6. Large payouts

- All central banks worry that large payouts can limit their ability to create buffers that would cushion the impact of a crisis.
- Seeking both financial stability and autonomy/independence central banks are reluctant to seek assistance from governments.

In India, former Governor D Subbarao wrote in his memoir issue of the amount of surplus transferred and the capital requirement of the RBI has been contentious but never acrimonious: “These arguments (on transfers) go on every year and a settlement reached with both sides showing some flexibility.”

7. Demands for an interim dividend

- It does indicate that finances are under pressure.
- Last year, the RBI paid out an interim dividend of Rs 10,000 crore; the interim dividend payout announced this week is close to three times that amount.
- The government is trying hard to narrow its fiscal deficit, as it spends extra even as revenues aren't booming.
- The fact is that during periods of high growth, as we saw during the last decade, the government doesn't make such demands sign that high growth in revenues obviates the need to dip into the extra surplus of the RBI.

8. The global practice on payment of surplus

- Almost all central banks, the US Federal Reserve, the Bank of England, Germany's Bundesbank, or the Reserve Bank of Australia are owned by their respective governments and have to transfer their surplus or profits to the Treasury or the equivalent of India's Finance Ministry.
- The UK has a formal Memorandum of Understanding on the financial relationship between the Treasury and the Bank of England, which lays down a clear framework for passing on 100% of net profits to the government.
- The US Fed transfers all its net earnings to the Treasury.

GSIII: Economy

VOSTRO ACCOUNTS

1. Context

On November 15, the government announced that nine special Vostro accounts have been opened with two Indian banks after permission from the RBI to facilitate trade in the rupee in the wake of sanctions on Russia by the US and European countries.

2. About Vostro account

- A Vostro account is an account that a domestic bank holds for a foreign bank in the domestic bank's currency which, in the case of India, is the rupee.
- The RBI allowed nine such accounts, including IndusInd Bank and Uco Bank.
- In the case of trade with Russia, payments in rupee for the export and import of goods will go to these Vostro accounts.
- The owners and beneficiaries of this money will be the exporters and importers in both countries.
- The banks will keep a record of money transferred.

3. About Nostro account

- Two kinds of accounts, Vostro and Nostro, are often mentioned together.
- Both Vostro and Nostro are technically the same types of accounts, with the difference being who opens the account and where.
- So, if an Indian bank like the SBI wants to open an account in the United States, it will get in touch with a bank in the US, which will open a Nostro account and accept payments for SBI in dollars.
- The account opened by the Indian bank in the US will be a Nostro account for the Indian bank, while for the US bank, the account will be considered a Vostro account.

Nostro means ‘ours’ and Vostro means ‘yours’ in Latin. Therefore, the accounts opened by IndusInd and UCO are Vostro, and the ones opened by Russia’s Sberbank and VTB Bank are Nostro accounts.

4. Need for the Vostro accounts

- On July 11, the RBI put in place a mechanism to settle international trade in rupees “to promote the growth of global trade with emphasis on exports from India and to support the increasing interest of the global trading community in the rupee”.
- The central bank’s move has come in the wake of increasing pressure on the Indian currency in the wake of Russia’s invasion of Ukraine and sanctions by the US and the EU.
- According to the central bank, AD (authorized dealer) banks in India have been permitted to open rupee Vostro accounts.
- Accordingly, for settlement of trade transactions with any country, an AD bank in India may open special rupee Vostro accounts of correspondent banks of the partner trading country.

GS III: Science&technology

LIQUIFIED NATURAL GAS

1.Context

The EU is weaning itself off piped Russian gas by rapidly expanding imports of liquified natural gas, much of it fracked in the US

2.What is Liquified natural gas (LNG)

LNG is natural gas reduced to a liquid state (liquefaction) through intense cooling to around -161 degrees Celsius (-259 Fahrenheit)

This liquid gas is 600 times smaller than the original volume and is half the weight of water

The compressed fossil fuel, which is constituted almost wholly of methane a potent greenhouse gas , can be transported around the world by ship

After arriving at its destination, the cargo is regasified in a floating terminal and redistributed through pipelines.

But despite LNG's export potential, the high cost of liquefaction and producing LNG has limited its market

3.Key takeaways

- In Germany, the estimated cost of building floating LNG terminals for imports to substitute Russian gas has doubled, due in part to higher operating and infrastructure costs
- The cooling, liquefying and transport processes, as well as the post-transport regasification procedures, also require a lot of energy
- Between 10-25% of the energy of the gas is being lost during the liquefaction process
- LNG is to compensate for lost Russian gas supplies, with four new terminals set to come online in Germany alone
- But though touted as a short-term fix, many fear the gas is here for the long haul as the EU becomes the biggest LNG importer in the world.
- With LNG creating almost 10 times more emissions than piped gas by one estimate, its rapid expansion will likely compromise climate targets, say climate researchers, who also reject claims that most LNG infrastructure is suitable for green hydrogen in the future

4.Climact impact of LNG

- A lot of energy is required to extract natural gas from a reservoir, to transport from the gas field to the LNG facility for processing, to chill gas to such low temperatures, and to hold it at that temperature before it is warmed and regasified following a long sea or train journey
- Methane loss across the supply chain risks also contributes to LNG's high emissions
- Processing LNG is so energy- and carbon-intensive that it can create almost 10 times more carbon emissions than piped gas
- The numerous stages required to take LNG from the wellhead to the market lead to a "very high imported emissions intensity" in comparison to piped gas, whose emissions are limited to upstream and transport and processing

- The emissions intensity of piped gas from Norway in particular is almost 10 times less than average LNG emissions
- LNG emits 14 times as much carbon as solar power when producing the equivalent amount of energy, and 50 times as much carbon as wind power

5.LNG Terminals as green hydrogen tracks

- The floating LNG terminals now going online in Germany and already established in the Netherlands, France and Belgium are not able to be adapted into infrastructure for green hydrogen
- Any LNG terminals that are built need to be easily retrofitted for green hydrogen to fast-track the clean energy transition
- By the end of the decade, additional costs for Germany's gas imports could reach up to €200bn (\$212bn), doubling gas bills for consumers
- Cheaper sustainable energy sources could instead make up the current gas deficit. Comprehensive energy efficiency upgrades in buildings and electric heat pump instalments will also “turbocharge” the energy transition, said Maria Pastukhova, senior policy adviser at E3G
- There is a corresponding fear that LNG infrastructure overcapacity and long-term regasification contracts at German LNG ports will lead to stranded assets while simultaneously delaying the phase-out of fossil fuels
- A report by the German think tank New Climate Institute says the new planned terminals could expand capacity by two-thirds above what the nation consumes

GS III: Science&technology

VIRAL NUTRITION

1. Introduction

- At various peaks of the COVID-19 pandemic, viruses have had a reputation as destroyers of public health systems and human lives.
- They have a peculiar biology while inert outside a living body, but inside, they hijack the cellular machinery to feed, replicate and spread.

- This association with disease and death has come to define their form in the public imagination, redeemed not even by the fact that other microbes destroy viruses.
- But a new study, published on December 27 by researchers at the University of Nebraska-Lincoln, offers to upend this.

2. Key Points

- The authors of the study have reported that a particular genus of plankton can consume viruses
- as well as “**grow and divide given only viruses to eat**”.
- We already know of other cells that can ‘**consume**’ viruses to destroy them such as the macrophage cells of the human immune system.
- The difference lies in being able to ‘**eat**’ viruses to fulfill one’s biological imperatives.
- Plankton of the genus Halteria, they claim to have found, can each consume 10,000 to a million virus particles a day, increase their population using the metabolized energy, and provide more food for the zooplanktons that consume the Halteria.
- This could be significant for the marine food chain.

3. About plankton

- Plankton is microscopic organisms that can only move with a current.
- They don’t have any facilities to actively propel themselves.
- Halteria plankton is ciliates, meaning they have hair representative purposes like structures called cilia on their surface.
- Sometimes they can beat some of these cilia to jump short distances, but not often as it they can’t do this often because it requires too much energy.

3.1. Plankton in the food chain

- A type of plankton the phytoplankton is found nearer the surface of many water bodies.

- It is an autotroph, which means it can make its food which it does by consuming carbon dioxide, among other compounds, through photosynthesis.
- Small fish and larger plankton called zooplankton eat phytoplankton for their nutrition; they are in turn eaten by larger fish, and so forth.
- When phytoplankton die, they drift around where they are, becoming part of a coastal nutrient cycle or they drift down towards the seafloor, where they decompose.

Their constituents then become available for microbes or are sequestered into the seafloor.

So, phytoplankton brings carbon and other nutrients from the atmosphere and sea surface down to the seafloor and help replenish the food chain (and also ‘trap’ carbon into their bodies and as sediments).

- They are joined by bacteria that make their food by oxidizing sulfur, iron, or hydrogen, in a process called chemosynthesis.

4. Bacterivores

- Halteria plankton is found in large numbers in freshwater bodies.
- They are heterotrophs meaning they can’t produce their food.
- Instead, they are well-known bacterivores that consume bacteria to power themselves.
- In the words of a noted 1999 paper, viruses “**short-circuit**” the process of nutrients moving up the food chain.
- They infect and kill both bacteria and plankton, releasing organic matter that dissolves in the water.
- Note that scientists have modeled this ‘**viral shunt**’ and studied it in the lab; investigations of its real-world impact are ongoing.
- In the new study’s paper, the authors wrote that by also consuming viruses for nutrition,

- Halteria plankton can recover the nutrients lost in the viral shunt and bring them back into the food chain.

“This flow would depend on virion size and nutritional content, which varies among strains,” they added, “but it is already clear that viruses of a wide range of sizes can be taken up”.

5. Redemption for viruses

- Viruses are the single-most populous life form on Earth; their cumulative biomass outweighs that of humans by a factor of 10¹⁰.
- In 2020, Curtis Suttle, a co-author of the 1999 paper, called them “**fantastic nutritional sources**”. The finding wasn’t unexpected.
- In 2020, a group from the U.S. and Spain published a paper after 10 years of data-taking and study, positing that some protists (eukaryotes that aren’t plants, animals, or fungi; eukaryotes are organisms whose cells have nuclei) might be munching on viruses.
- They wrote that their findings “**indicate that the viral shunt is complemented by a viral link in the marine microbial food web**”.
- There have been papers discussing this link since at least 1992.

6. Chloroviruses

- In the new study, the researchers found that Halteria plankton reduced the population of
- chloroviruses ‘**fed**’ to them while growing their numbers whereas Paramecium ciliates
- consumed the chloroviruses but didn’t proliferate.
- That is, to quote from their paper, “not all ciliates can grow on chloroviruses in these conditions, even when they consume them”.
- Second, as the population of viruses and Halteria changed over the course of their interaction (in the lab), the researchers used a modeling tool to

understand if they fit what we already know about predator-prey interactions in the wild.

GS III: Science&technology

RARE EARTH ELEMENTS

1. Why in news

Swedish state-owned mining company, LKAB, on January 12 announced that it has discovered more than one million tonnes of rare earth oxides in the country's northern area. This is the largest known deposit in Europe, the company added.

2. About rare earth metals

Rare earth elements or rare earth metals are a set of 17 chemical elements in the periodic table the 15 lanthanides, plus scandium and yttrium, which tend to occur in the same ore deposits as the lanthanides, and have similar chemical properties

The 17 rare earths are cerium (Ce), dysprosium (Dy), erbium (Er), europium (Eu), gadolinium (Gd), holmium (Ho), lanthanum (La), lutetium (Lu), neodymium (Nd), praseodymium (Pr), promethium (Pm), samarium (Sm), scandium (Sc), terbium (Tb), thulium (Tm), ytterbium (Yb), and yttrium (Y)

Despite their classification, most of these elements are not really “rare”. One of the rare earths, promethium, is radioactive

Atomic Number	Element	Symbol
21	Scandium**	Sc
39	Yttrium	Y
57	Lanthanum	La
58	Cerium	Ce
59	Praseodymium	Pr
60	Neodymium	Nd
61	Promethium*	Pm
62	Samarium	Sm
63	Europium	Eu
64	Gadolinium	Gd
65	Terbium	Tb
66	Dysprosium	Dy
67	Holmium	Ho
68	Erbium	Er
69	Thulium	Tm
70	Ytterbium	Yb
71	Lutetium	Lu

Source: Thermo Fisher Scientific

3. Applications of rare earths

- These elements are important in technologies of consumer electronics, computers and networks, communications, clean energy, advanced transportation, healthcare, environmental mitigation, and national defence, among others
- Scandium is used in televisions and fluorescent lamps, and yttrium is used in drugs to treat rheumatoid arthritis and cancer
- Rare earth elements are used in space shuttle components, jet engine turbines, and drones

- Cerium, the most abundant rare earth element, is essential to NASA's Space Shuttle Programme
- In recent years, rare earths have become even more important because there has been an increase in demand for green energy
- Elements like neodymium and dysprosium, which are used in wind turbine motors, are sought-after more than ever as wind mills across the world continue to grow
- Moreover, the push for switching from internal combustion cars to electric vehicles has also led to a rise in demand for rare earth magnets made from neodymium, boron, and iron and batteries

GS III: Agriculture

IMBALANCED APPLICATION OF FERTILISERS

1. Context

The easing of global prices has boosted fertiliser availability and cut the subsidy bill. However, asymmetry in the pricing structure has led to a worsening nutrient imbalance due to the over-application of urea and DAP.

2. Global Prices of Fertilisers

- The year 2022 saw global prices of fertilisers go high due to the post-Russia invasion of Ukraine in February.
- Landed prices of urea imported into India (cost plus freight) are ruling at around \$550 per tonne, as against \$900-1,000 average in November-January 2021-22, when global demand for food and plant nutrients surged with the lifting of Covid lockdowns by most countries.



- The United Nations Food and Agriculture Organisation's Food Price Index hit 159.7 points in March 2022.
- From that all-time high, the index -which is a weighted average of global prices of a representative basket of food commodities over a base period value, taken at 100 for 2014-2016- has fallen for nine consecutive months.
- However, till December 2022 a number of 132.4 points was below even the year-ago value of 133.7 points and the lowest since the 129.2 points of September 2021.

FAO FOOD PRICE INDEX

(2014-2016=100)



ALL-INDIA CONSUMPTION OF FERTILISER PRODUCTS

	UREA	DAP	MOP*	NPKS	SSP
2009-10	266.73	104.92	46.34	80.25	26.51
2010-11	281.13	108.7	39.32	97.64	38.25
2011-12	295.65	101.91	30.29	103.95	47.46
2012-13	300.02	91.54	22.11	75.27	40.3
2013-14	306	73.57	22.8	72.64	38.79
2014-15	306.1	76.26	28.53	82.78	39.89
2015-16	306.35	91.07	24.67	88.21	42.53
2016-17	296.14	89.64	28.63	84.14	37.57
2017-18	298.94	92.94	31.58	85.96	34.39
2018-19	314.18	92.11	29.57	90.28	35.79
2019-20	336.95	101	27.87	98.57	44.03
2020-21	350.43	119.11	34.25	118.11	44.89
2021-22	341.8	92.72	24.56	114.79	56.81
Apr-Nov 21	217.53	70.47	19.26	85.88	42.67
Apr-Nov 22	232.53	83.53	11.23	69.96	38.7

*For direct application, excluding supply to complex fertiliser units.

Source: Fertiliser Association of India.

(All figures in lakh tonnes)

Image Source: The Indian Express

3. Major Reasons behind over-usage

3.1 High fertilizer subsidy on urea

High Government subsidies are behind the low pricing, and high sales, of these two fertilisers.

Under the Nutrient based subsidy scheme, a fixed amount of subsidy, decided on an annual basis, is provided on each grade of subsidised phosphatic and potassic (P&K) fertilisers, except for urea, based on the nutrient content present in them.

3.2 Cooling of global fertilizer prices

The easing of global fertilizer prices significantly improved overall availability of the fertilizers, except Muriate of Potash (MOP), during the ongoing rabi cropping season. India is the top country by diammonium phosphate import in the world.

4. About Urea

- Urea is a source of nitrogen, an essential nutrient crucial for crop growth and development.
- Urea is the most important nitrogenous fertilizer in the country because of its high N content (46%N).
- It is a white crystalline organic chemical compound with neutral pH.
- Urea is widely used in the agricultural sector both as a fertilizer and animal feed additive.

The Ideal Nitrogen, Phosphorous, Potassium (NPK) use ration is 4:2:1.

Urea has 46% Nitrogen (N), while DAP contains 46% Phosphorous (P) plus 18% N and MOP has 60% Potassium (K).

5. About Di-Ammonium Phosphate (DAP)

- It is a very popular fertilizer because of its excellent physical properties and nutrient content.
- It is free-flowing, dust-free and does not normally give any storage problems.
- DAP is almost water-soluble and ultimately leaves an acid effect on soils because of the ammonia (NH_4) it contains.
- DAP on incorporation into soil reacts with water and gets converted into HPO_4 and NH_4 .
- Ammonium (NH_4) follows the same routes as in the case of urea.
- Phosphorus in DAP is present in the best available form (HPO_4).
- Depending upon the soil reaction (pH), phosphorus exists in 3 forms which can be absorbed by plant roots.
- These are HPO_4 , H_2PO_4 and PO_4 . Phosphorus, which is immobile in the soil, is not subjected to leaching losses.

6. Challenges

6.1 Over-use of fertilisers

- India's fertiliser sector has been riddled with distortions from excessive use of urea. The diammonium phosphate or DAP is seeing a similar phenomenon of over-application due to under-pricing.
- The effects of overconsumption of urea and DAP:
- The current NPK ratio of 13:5:1, as against the ideal 4:2:1, would adversely affect crop yields
- It will adversely affect the health of plants and humans, due to the unavailability of a balanced nutrient mix.

6.2 Increase in Urea consumption

- Urea has 46% nitrogen (N), while DAP contains 46% phosphorus (P) plus 18% N and MOP has 60% potassium (K).
- Neem oil supposedly also acted as a mild nitrification inhibitor, allowing a more gradual release of nitrogen. Increased nitrogen use efficiency would, in turn, bring down the number of urea bags required per acre.

7. The road ahead or Suggestive measures

- **Restriction of DAP-** The DAP use must be restricted to rice and wheat. All other crops can meet their Phosphorus requirement through SSP and complexes.
- **Promotion of SSP** -The SSP's acceptance can be raised by permitting sale only in granular and not in powdered form as SSP powder is prone to adulteration with gypsum or clay.
- Farmers can be assured of quality through granules, which will also promote slower release of P without drift during application.

GSIII: Environment & ecology

AIR QUALITY INDEX (AQI)

1.Context

Over the past few days, as the **problem of air pollution** in Delhi-NCR and surrounding areas has made its annual November-December appearance in policy debates and public discussion, the Air Quality Index (AQI) has been mentioned repeatedly.

2.What is AQI

AQI is a number, which is a measure of air quality. The higher the AQI, the worse the air. After staying above 450 for a couple of days, the AQI in Delhi on Sunday had come down to around 320

The colour-coded AQI index was launched in India in 2014, and it helps the public and the government understand the condition of the air and what subsequent measures are to be taken to combat the situation, based on its severity

There are six categories of AQ

Good	0-50
Satisfactory	50-100

Moderately polluted	100-200
Poor	200-300
Very Poor	300-400
Severe	400-500

3.AQI and it's calculations

- It is launched by the Central government in 2014 as a part of the swatch Bharat campaign
- AQI was introduced to help simplify the common understanding of pollution
- An expert group comprising medical professionals, air quality experts, academia, advocacy groups, and others was constituted and a technical study was awarded to IIT Kanpur
- IIT Kanpur and the Expert Group recommended an AQI scheme
- According to the Central Pollution Control Board, part of the Ministry of Environment, Forests and Climate Change, the AQI transforms complex air quality data of various pollutants into a single number (index value), nomenclature and colour
- The pollutants measured include PM 10, PM 2.5, Nitrogen Dioxide, Ozone, Carbon, etc
- There is a calculation that goes behind the index
- There are six or eight pollutants in the affected air and each of these pollutants is given a weight based on a formula
- The calculated weight reflects depends on the kind of impact it has on human life
- The worst of these weights is given as composite air quality, so instead of giving you six different numbers, and six different colours, it throws up one single colour, one single number to denote the overall impact. Monitoring stations across the country assess these levels

4.Impacts of pollutants

- Among the more harmful pollutants are those of a smaller size, such as particulate matter (PM) 2.5, which is an atmospheric particulate matter of

diameter smaller than 2.5 micrometres (or around 3 per cent of the diameter of a human hair)

- It causes respiratory problems and reduces visibility
- The particles can only be detected with the help of an electron microscope because they are so small
- Due to their size, the PM 2.5 particles can easily bypass the nose and throat and can easily enter the circulatory system
- The particles can also lead to cause chronic diseases such as asthma, heart attack, bronchitis and other respiratory problems

4. Way forward

Based on the levels, the governments in areas like Delhi announce measures. As the AQI in NCR dipped to the ‘severe’ category on Thursday, stage 4 of the Graded Response Action Plan was set in motion

The GRAP has specifically been instituted for emergency measures that kick in to prevent further deterioration of air quality in Delhi-NCR

A central panel directed authorities to prohibit the use of diesel four-wheelers that are not BS-VI compliant, as well as the entry of trucks in Delhi. Petrol cars can continue to ply as usual

GSIII: Environment & ecology

PROJECT DOLPHIN

1. Context

Prime Minister Narendra Modi announced the government’s plan to launch a Project Dolphin. The proposed project is aimed at saving both river and marine dolphins.

2. About Project Dolphin

- The initiative got in-principle approval in 2019 at the first meeting of the National Ganga Council (NGC), headed by the Prime Minister.

- Project Dolphin is one of the activities planned under Arth Ganga, an ambitious inter-ministerial initiative of the government approved in 2019.
- Project Dolphin will be on the lines of Project Tiger, which has helped increase the tiger population.
- It is expected to be implemented by the Ministry of Environment, Forest and Climate Change.
- A Special Conservation program needs to be taken up for Gangetic Dolphin which is a national aquatic animal and also indicator species for the river Ganga spread over several states.
- Indicator species, organisms-often a microorganism or a plant-that serves as a measure of the environmental conditions that exist in a given locale.
- As the Gangetic dolphin is at the top of the food chain, protecting the species and its habitat will ensure conservation of aquatic lives of the river.
- So far, the National Mission for Clean Ganga (NMCG) , which implements the government's flagship scheme Namami Gange, has been taking some initiatives for saving dolphins.

3. About Gangetic Dolphin

- The Gangetic river system is home to a vast variety of aquatic life, including the Gangetic dolphin (*Platanista gangetica*).
- The Gangetic dolphin is one of five species of river dolphin found around the world.
- It is found mainly in the Indian subcontinent, particularly in Ganga-Brahmaputra-Meghna and Karnaphuli-Sangu river systems.
- The Conservation Action Plan for the Ganges River Dolphin, 2010-2020, describes male dolphins as being about 2-2.2 metres long and females as a little longer at 2.4- 2.6 m.
- An adult dolphin could weigh between 70 kg and 90 kg.
- The breeding season of the Gangetic dolphin extends from January to June. They feed on several species of fishes, invertebrates etc.

4. Conservation Status:

- Indian Wildlife (Protection), Act 1972: Schedule I.
- International Union for the conservation of nature (IUCN) : Endangered.

- Conservation on International Trade in Endangered Species (CITES): Appendix I (most endangered).
- Convention on Migratory Species (CMS): Appendix II (migratory species that need conservation and management or would significantly benefit from international co-operation).

5. Why is it important to save Dolphins?

The construction of dams and barrages, and increasing pollution have led to a decline in the population of aquatic animals in the rivers in general and of dolphins in particular.

Aquatic life is an indicator of the health of river ecosystems. As the Gangetic dolphin is at the top of the food chain, protecting the species and its habitat will ensure conservation of aquatic lives of the river.

While no exact count is available, various estimates suggest that the Gangetic dolphin population in India could be about 2,500-3,000. However, Minister of State for Environment, Forest and Climate Change Babul Supriyo had told Lok Sabha last year that there were about 1,272 dolphins in Uttar Pradesh and 962 in Assam.

6. Initiatives to save Gangetic Dolphin so far

- **National Dolphin Research Centre (NDRC):** The NDRC is coming up on the 4,400 square metre plot of land on Patna University's premises to conserve the endangered Gangetic river dolphin.
- **Dolphin Sanctuary:** Vikramshila Ganges Dolphin Sanctuary has been established in Bihar.
- **National Ganga River Dolphin Day:** The National Mission for Clean Ganga (NMCG) celebrates 5th October as National Ganga River Dolphin Day.
- **Conservation Plan:** The Conservation Action Plan for the Ganges River Dolphin 2010-2020, which “identified threats to Gangetic Dolphins and

impact of river traffic, irrigation canals and depletion of prey-base on Dolphins populations”.

GS III: Environment & ecology

SHRINKING BIODIVERSITY

1. Context

According to the most recent Living Planet Report 2022, published by the World Wildlife Fund (WWF), monitored wildlife populations, including mammals, birds, amphibians, reptiles, and fish, have seen a decline in population by 69% between 1970 and 2018.

2. Key Findings of Living Planet Report, 2022

2.1 At Global Level

- **Wild life populations:** Monitored wildlife populations — including mammals, birds, amphibians, reptiles and fish — have seen a 69% drop between 1970 and 2018. Latin America and the Caribbean regions have seen the largest decline of monitored wildlife populations globally, with an average decline of 94% between 1970 and 2018. During the same period, monitored populations in Africa plummeted by 66%, while Asia Pacific’s monitored populations fell by 55%.
- **New Species:** With 838 new species and a little over 11,000 new populations, this year's report recorded 32,000 species populations of 5,230 species.
- **Oceans:** The global abundance of 18 of 31 oceanic sharks have declined by 71% over the last 50 years. By 2020 three-quarters of sharks and rays were threatened with extinction.
- **Most threatened species:** Freshwater populations have declined the most, with an average 83% decline between 1970 and 2018.
- **Cycads** -an ancient group of seed plants -are the most threatened species, while corals are declining the fastest, followed by amphibians.

- **Mangroves:** Despite their importance, mangroves continue to be deforested by aquaculture, agriculture and coastal development at a rate of 0.13% annually. For instance, 137 km of the mangrove forest in the Sundarbans have been lost to erosion since 1985. According to a study, there are still areas where mangroves are being lost, particularly in Myanmar.

2.2 Scenario In India

- According to the WWF-India program director, the country's population of honeybees and 17 species of freshwater turtles has declined during this time period.
- According to the report, the Himalayan region and the Western Ghats are some of the most vulnerable regions in terms of biodiversity loss in the country, and increased biodiversity loss is expected in the future if temperatures rise.
- Projects like the recent cheetah translocation are thus beneficial to species preservation, and India has seen successes like Project Tiger or projects for one-horned rhinos and lions.
- Because of the conservation of these species, there is an umbrella effect on all other species living in that habitat.

3. About Living Planet Report

- Published biennially by WWF since 1998, the Living Planet Report is the world's leading, science-based analysis, on the health of our planet and the impact of human activity.
- It is based on a Living Planet Index and ecological footprint calculation.
- The Living Planet Index, managed by the Zoological Society of London (ZSL) in collaboration with the WWF, is an indicator of the state of global biological diversity based on trends in vertebrate populations of species from around the world.

4. About World Wildlife Fund(WWF)

- It is an international non-governmental organisation founded in 1961. It is headquartered at Gland, Switzerland.

- It is the world's largest conservation organisation that works in the field of wilderness preservation and the reduction of human impact on the environment.
- It is a foundation with 65% of funding from individuals and bequests (properties given by will), 17% from government sources (such as the World Bank, USAID, etc) and 8% from corporations in 2020.
- Since 1995, WWF has invested over \$1 billion in over 12,000 conservation initiatives with the goal of halting the degradation of the planet's natural environment and constructing a future in which humans live in harmony with nature.

GSIII: Environment & ecology

PROTECTED AREAS

1. Context

Ecologically sensitive zones (ESZ) are intended to safeguard 'protected areas'- national parks and wildlife sanctuaries by transitioning from an area of lower protection to an area of higher protection. However, the creation of these zones has provoked protests in Kerala and some other regions, in a precursor to what is likely to emerge in other parts of the country.

2. What are Protected Areas?

- Protected areas are those where human occupation or resource exploitation is restricted.
- The International Union for Conservation of Nature (IUCN) provided the widely accepted definition across regional and global frameworks in its categorization guidelines for protected areas.
- There are various types of protected areas, with varying levels of protection depending on each country's enabling laws or the regulations of the international organisations involved.

- National Parks, Sanctuaries, Conservation / Community Reserves, and Tiger Reserves are all types of protected areas in India. Reserved Forests are not included.
- The Wildlife (Protection) Act of 1972 (WLPA) established the concept of a protected area (PA).
- The term "protected area" also refers to Marine Protected Areas, the boundaries of which will include some area of ocean, as well as Transboundary Protected Areas, which overlap multiple countries and remove borders within the area for conservation and economic purposes.

3. What are Eco-Sensitive Zones?

- Eco-Sensitive Zones (ESZs) or Ecologically Fragile Areas (EFAs) are areas notified by the MoEFCC around Protected Areas, National Parks and Wildlife Sanctuaries.
- The purpose of declaring ESZs is to create some kind of “shock absorbers” to the protected areas by regulating and managing the activities around such areas.
- They also act as a transition zone from areas of high protection to areas involving lesser protection.
- The Environment (Protection) Act, 1986 does not mention the word “Eco-Sensitive Zones”.
- An ESZ could go up to 10 kilometres around a protected area as provided in the Wildlife Conservation Strategy, 2002.
- Moreover, in the case where sensitive corridors, connectivity and ecologically important patches, crucial for landscape linkage, are beyond 10 km width, these should be included in the ESZs.

4. Size of Eco-Sensitive Zone

- According to the Wildlife Conservation Strategy, 2002, an ESZ might extend up to 10 kilometres surrounding a protected area.
- In the case of vulnerable corridors, accessibility, and biologically essential patches critical for landscape connection, regions wider than 10 km can be incorporated into the eco-sensitive area.

- Furthermore, even within the framework of a specific Protected Area, the distribution of an ESZ and the level of regulation may not be consistent throughout, and it may be of varied breadth and extent.

5. Importance of Eco-Sensitive Zones

- Eco-sensitive zones would reduce the effect of industrialization and other development activities.
- The protected areas are managed using the core and buffer strategy, which also protects and benefits local populations.
- Eco-sensitive areas encircling protected areas, animal refuges, and national parks act as a ‘Shock Absorber.’
- An ESZ assists in in-situ conservation, which is concerned with protecting an endangered species in its natural environment, such as Kaziranga National Park in Assam, which protects one-horned rhinos.
- Eco-Sensitive Zones reduce deforestation and human-animal conflict.

6. How FRA is being implemented?

- By bringing in the FRA, lawmakers were trying to undo a historic injustice done to the forest dwelling community of India.
- The Ministry of Environment, Forests and Climate Change (MoEFCC) reckoned in 2009 itself that doing so would mean handing over at least four lakh sq. km -more than half of India’s notified forest area -to village-level institutions. But as of June 2022, only 64,873.70 sq. km- or 16%- has come under the FRA.

7. What is the Problem?

- Significantly, parts of the ESZs in ten States- Andhra Pradesh, Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Rajasthan and Telangana- fall within the Scheduled Areas notified under the Fifth Schedule of the Constitution.
- Such Scheduled Areas cover over 11% of the country’s land area and are thickly forested and mountainous.

- They are preponderantly populated by Scheduled Tribe groups and are notified by the President under Article 244 where the Provisions of the Panchayat (Extension to Scheduled Areas) Act (PESA) 1996 apply.
- The PESA recognises habitation-level gram sabhas to be competent to safeguard and preserve community resources on forest and revenue lands in Scheduled Areas.
- The MoEFCC has shown no inclination to amend the Indian Forest Act 1927, the Wildlife (Protection) Act, 1972 and the Environment (Protection) Act 1986 (under which ESZs are notified) to comply with the PESA and FRA.
- In fact, in the Forest Conservation Rules, compliance with the FRA, recognition of forest rights and the gram sabha's consent were preconditions for considering proposals to divert forest land for non-forestry purposes - until the MoEFCC did away with them in 2022.
- The Ministry has also overlooked demands by the National Commission for Scheduled Tribes to restore the erstwhile FRA compliance procedure.

8. What has led to the Protest?

- Recently, the Supreme Court directed that every protected forest, national park and wildlife sanctuary across the country should have a mandatory eco-sensitive zone (ESZ) of a minimum one km starting from their demarcated boundaries.
- Secondly, the Court vested the powers to ensure compliance with the guidelines with the Principal Chief Conservator of Forests (PCCF) and the Home Secretary of the State/UT.
- The PCCF was to make a list of all structures within the ESZs and report it to the Supreme Court within three months (this is yet to be done).
- The Court also ordered that no new permanent structure could come up for any purpose within an ESZ.
- This effectively meant that all the activities permitted by the guidelines and which are already being carried out can continue only if the PCCF grants permission, and that too within six months of the court's order.
- This period has already expired. Additionally, the Court's directions have put the lives of many people in the hands of the PCCF-whose authority now

extends beyond the forest to revenue lands falling within an ESZ. This has led to protests in Kerala.

GSIII: Environment&ecology

NOISE POLLUTION

1. Context

A new study has found that noise generated by human activity makes it harder for dolphins to communicate and coordinate with each other. As the levels of underwater noise increase, these mammals have to shout to each other.

2. What is Ocean Noise?

- Ocean noise refers to sounds made by human activities that can interfere with or obscure the ability of marine animals to hear natural sounds in the ocean.
- Various marine animals rely on their ability to decipher sounds. It is considered as an efficient means of communication underwater and helps the marine animals stay alive by avoiding predators too.
- Over the last century, human activities such as exploration, shipping, energy exploration etc create heavy loads of noise pollution that travels far away affecting the natural radars of the marine ecosystem.
- Dolphins are social mammals that communicate through squeaks, whistles and clicks. They also use echolocation in order to locate food and other objects. Therefore, anthropogenic noise coming from large commercial ships, military sonars or offshore drilling can severely impact their well-being.

3. How was the study takes place?

- To make their observations, researchers places two dolphins, named Delta and Reese, at an experimental lagoon and trained them to press their underwater buttons located at either end of the enclosure within one second of each other.
- Both dolphins were also made to wear recording tags that documented their sound and motion.
- Delta and Reese were released from a starting point during each trail, and in some trails, one was held back for five to 10 seconds while the other was released immediately.
- In case of delayed-release trails, the dolphins had to depend on just vocal communication to coordinate the button press.
- Researchers conducted around 200 such trails and used underwater speakers to create different sound environments with in experimental lagoon.

4. Findings of this study

- It was found that as it got noisier underwater, both dolphins changed their behaviour to communicate and work together.
- Apart from raising the volume and increasing the length of their calls, they also changed their body language -they turned their bodies towards each other and swam across the lagoon to be closer to each other.
- Researchers noted despite these attempts to compensate for the noisy background, the dolphins had less success with the task.
- According to the study, “cooperative task success decreased in the presence of noise, dropping from 85 per cent during ambient noise control trials to 62.5 per cent during the highest noise exposure.”
- Previous studies have demonstrated that dolphins change their behaviour when they come across boats but, before the latest research, no one observed how anthropogenic noise can impact the coordination among these aquatic creatures.

5. Impacts of Oceanic Noise Pollution

- Marine animals are known to use sound to navigate, find food and protect themselves. As sound travels faster in water than air, it makes for an important mode of communication because it can convey a lot of information quickly and over long distances.
- Anthropogenic Noise drowns the natural soundscapes and puts the marine ecosystem in stress.
- Baby clown fishes wander into the sea directionless due to heavy noise and are unable to find their way home.
- In case the noise settles in more permanently, the animals leave the place for good.
- Such forced evacuations reduce the population sizes and the animals give up their territories which brings competition for biological resources at other places.
- Animals also face hearing loss due to noise pollution.
- Scientists believe that fish species rely on sounds during reproductive activities, including mate attraction, courtship and mate choice.
- Several studies and incidents have shown that sounds made by drilling, commercial ships and military operations lead to disruption of marine life.

6. How can we reduce human-made underwater noise pollution?

- Regulations could be introduced to reduce underwater noise pollution from shipping and other sources.
- Measures to reduce vessel Collisions with marine mammals have already been implemented in some places, including most recently along the US east coast. These include instructions to avoid areas with known concentrations of whales, and to reduce speed in vulnerable areas.
- As sound can carry for thousands of miles underwater, the effects of noise pollution cannot be avoided solely via route and speed alterations.
- The European Commission's ongoing LIFE-PIAQUO project aims to develop and test tools to reduce underwater noise pollution and its impacts on Mediterranean aquatic biodiversity.

- Among other measures, it is exploring the optimisation of propellers to limit cavitation - the formation of vapour bubbles - the main origin of ship underwater radiated noise.
- Like land vehicles, ships could also be required to install mufflers to reduce the noise emitted by their engines.
- Investment in electric shipping which is quieter conventional shipping, could help combat noise pollution too.

Mains Corner

- 1. What is Polygraph test and explain how polygraph test works? Discuss the ethical issues associated with the polygraph test? (250 words)**
- 2. What is the difference between the Nostro accounts and Vostro accounts and discuss the creation of the Vostro accounts (250 words)**
- 3. What is River linking and discuss the significance of the River linking system in India (250 Words)**
- 4. Discuss about the rights conferred on minorities by the Constitution (250 Words)**
- 5. What are the impacts of global ease on the prices of fertilisers and discuss the reasons behind increased consumption of urea and DAP? (250 words)**

Prelims Corner

1. Consider the following statements

1. A Vostro account is an account that a domestic bank holds for a foreign bank in the domestic bank's currency which, in the case of India, is the rupee.
2. In the case of trade with Russia, payments in rupee for the export and import of goods will go to these Vostro accounts

Which of the above given statement is/ are correct

A.1 Only B.2 Only C. Both 1 and 2 D. Neither 1 Nor 2

Answer (C)

Both statements are correct

2. Consider the following statements

1. A polygraph test is based on the assumption that physiological responses that are triggered when a person is lying are different from what they would be otherwise.

2. Polygraph tests have been proven scientifically to have a 100% success rate

Which of the above given statement is/ are correct

A.1 Only B.2 Only C. Both 1 and 2 D. Neither 1 Nor 2

Answer (A)

- Neither polygraph tests nor narco tests have been proven scientifically to have a 100% success rate, and remain contentious in the medical field as well.
- However, recently, investigating agencies have sought to employ these tests in investigation, and they are sometimes seen as being a “softer alternative” to torture or ‘third degree’ to extract the truth from suspects.

3. Consider the following statements

1. AQI is a number, which is a measure of air quality. The higher the AQI, the better the air.

2. The pollutants measured include PM 10, PM 2.5, Nitrogen Dioxide, Ozone, Carbon, etc

Which of the above given statement is/ are correct

A.1 Only B.2 Only C. Both 1 and 2 D. Neither 1 Nor 2

Answer (B)

AQI is a number, which is a measure of air quality. The higher the AQI, the worse the air. After staying above 450 for a couple of days, the AQI in Delhi on Sunday had come down to around 320

4. Consider the following statements

1. CBI is governed by The Delhi Special Police Establishment (DSPE) Act, 1946, and it must mandatorily obtain the consent of the state government concerned before beginning to investigate a crime in a state
2. The CBI's position is in this respect different from that of the National Investigation Agency (NIA), which is governed by The NIA Act, 2008, and has jurisdiction all over the country
3. The consent of the state government to CBI can be either case-specific or "general"

Which of the above given statement is/ are correct

A.1 and 2 B.2 and 3 C.1 and 3 D.1, 2, 3

Answer (D)

All the above statements are correct

5. Consider the following statements

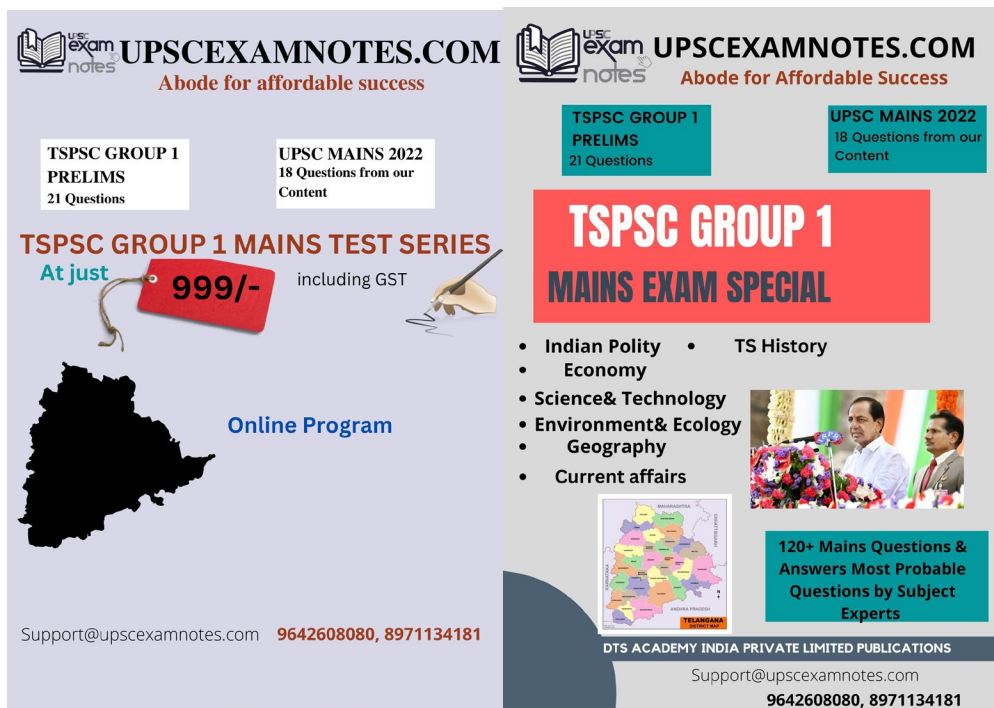
1. National Commission for Minorities (NCM) was set up under the National Commission for Minorities Act, 1992
2. Muslims, Christians, Sikhs, Buddhists and Zoroastrians (Parsis) were notified as minority communities by the Union Government.

Which of the above given statement is/ are correct

A.1 Only B.2 Only C. Both 1 and 2 D. Neither 1 Nor 2

Answer (C)

Both statements are correct



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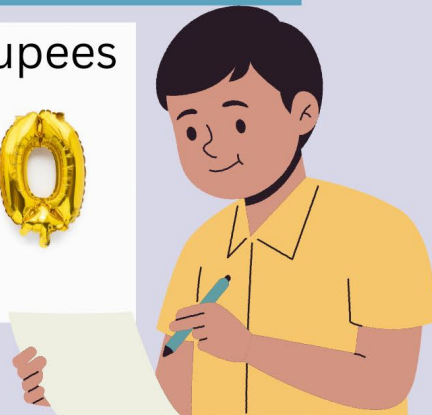
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