

March (Week 1)

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Prelims

NATIONAL

Kavach, the Indian technology that can prevent two trains from colliding

(Source: [Indian Express](#))

Context: Kavach, this indigenously developed Automatic Train Protection System is earmarked for aggressive rollout on 2,000 km in 2022-23, according the Budget proposals.

What is Kavach?

- It is India's very own automatic protection system in development since 2012, under the name Train Collision Avoidance System (TCAS), which got rechristened to Kavach or "armour".
- Simply put, it is a set of electronic devices and Radio Frequency Identification devices installed in locomotives, in the signalling system as well the tracks, that talk to each other using ultra high radio frequencies to control the brakes of trains and also alert drivers, all based on the logic programmed into them.
- One of its features is that by continuously refreshing the movement information of a train, it is able to send out triggers when a loco pilot jumps signal, called Signal Passed at Danger (SPAD), a grave offence in railway operations with respect to safety, and the key to accidents like collision.
- The devices also continuously relay the signals ahead to the locomotive, making it useful for loco pilots in low visibility, especially during dense fog.
- TCAS or Kavach includes the key elements from already existing, and tried and tested systems like the European Train Protection and Warning System, and the indigenous Anti Collision Device.
- It will also carry features of the high-tech European Train Control System Level-2 in future. The current form of Kavach adheres to the highest level of safety and reliability standard called Safety Integrity Level 4.
- In the new avatar, India wants to position Kavach as an exportable system, a cheaper alternative to the European systems in vogue across the world.
- While now Kavach uses Ultra High Frequency, work is on to make it compatible with 4G Long Term Evolution (LTE) technology and make the product for global markets.
- Work is on to make the system such that it can be compatible with other already installed systems globally.
- The Research Designs and Standards Organisation (RDSO) in Lucknow along with private vendors are developing the system. India wants more private players to take up the development and subsequent production.
- Once rolled out, it may be world's cheapest Automatic Train Protection System with the cost of rollout pegged at around Rs 30 lakh to 50 lakh per kilometer, a fourth of the cost of equivalent systems globally.
- In the next phase, the Kavach system will also be able to recalibrate as per temporary speed restrictions en route, something the system does not yet have.

RBI's Monetary Policy Committee

(Source: [Indian Express](#))

Context: A dissident member of the Reserve Bank of India's (RBI's) Monetary Policy Committee (MPC) has said that the central bank's accommodative policy stance "carries with it the risk of falling behind the curve in future because the stance limits the MPC's freedom of action in ensuing meetings".

Monetary policy committee

- The MPC fixes the benchmark interest rate — or the base or reference rate that is used to set other interest rates — in India. An accommodative stance indicates a willingness on the part of the central bank to expand money supply and cut interest rates.
- The primary objective of the RBI's monetary policy is to maintain price stability while keeping in mind the objective of growth. Price stability is a necessary precondition to sustainable growth.
- In May 2016, the RBI Act was amended to provide a legislative mandate to the central bank to operate the country's monetary policy framework. The framework, according to the RBI website, "aims at setting the policy (repo) rate based on an assessment of the current and evolving macroeconomic situation; and modulation of liquidity conditions to anchor money market rates at or around the repo rate.
- Under Section 45ZB of the amended RBI Act, 1934, the central government is empowered to constitute a six-member Monetary Policy Committee (MPC) to determine the policy interest rate required to achieve the inflation target. The first such MPC was constituted on September 29, 2016.
- Section 45ZB lays down that "the Monetary Policy Committee shall determine the Policy Rate required to achieve the inflation target", and that "the decision of the Monetary Policy Committee shall be binding on the Bank".

Members of MPC

- Section 45ZB says the MPC shall consist of the RBI Governor as its ex officio chairperson, the Deputy Governor in charge of monetary policy, an officer of the Bank to be nominated by the Central Board, and three persons to be appointed by the central government.
- The last category of appointments must be from "persons of ability, integrity and standing, having knowledge and experience in the field of economics or banking or finance or monetary policy". (Section 45ZC)
- The members of the present MPC were notified by the Centre on October 5, 2020.
- The three members from outside the RBI are Prof Ashima Goyal, professor at the Indira Gandhi Institute of Development Research, Prof Jayanth R Varma, professor IIM-Ahmedabad, and Dr Shashanka Bhide, senior advisor at the National Council of Applied Economic Research.

What is 'general consent' for CBI?

(Source: [Indian Express](#))

Context: Meghalaya has withdrawn consent to the CBI to investigate cases in the state, becoming the ninth state in the country to have taken this step. Meghalaya is ruled by Conrad Sangma's National People's Party (NPP) which is part of the BJP-led National Democratic Alliance. In November last year, the **Supreme Court had expressed concern** over a submission by the CBI that since 2018, around 150 requests for sanction to investigate had been pending with the eight state governments who had **withdrawn general consent** until then.

What is general consent?

- The 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 across the country.
- 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 seamless investigation of cases of corruption against central government employees in their states. This is consent by default, in the absence of which the CBI would have to apply to the state government in every case, and before taking even small actions.

Which states have withdrawn consent, and why?

- Traditionally, almost all states have given CBI general consent. However, since 2015 onward, several states have begun to act differently.
- Before Meghalaya’s action on March 4, eight other states had withdrawn consent to the CBI: Maharashtra, Punjab, Rajasthan, West Bengal, Jharkhand, Chhattisgarh, Kerala, and Mizoram. All these states except Mizoram and Meghalaya are ruled by the anti-BJP opposition.
- The first state to withdraw consent was Mizoram in 2015. The state was ruled by the Congress at the time, and Lal Thanhawla was Chief Minister. In 2018, the Mizo National Front (MNF) under Zoramthanga came to power; however, even though the MNF is an NDA ally, consent to the CBI was not restored.
- In November 2018, the West Bengal government led by Mamata Banerjee withdrew the general consent that had been accorded to the CBI by the previous Left Front government back in 1989. West Bengal announced its decision within hours of Andhra Pradesh, then ruled by N Chandrababu Naidu’s TDP, taking a similar decision.
- The Congress government of Chief Minister Bhupesh Baghel in Chhattisgarh withdrew consent in January 2019. Punjab, Maharashtra, Rajasthan, Kerala, and Jharkhand followed in 2020. At the time of withdrawing consent, all states alleged that the central government was using the CBI to unfairly target the opposition.

What does the withdrawal of general consent mean?

- It means the CBI will not be able to register any fresh case involving officials of the central government or a private person in the state without the consent of the state government.
- CBI officers will lose all powers of a police officer as soon as they enter the state unless the state government has allowed them.
- Calcutta High Court recently ruled in a case of illegal coal mining and cattle smuggling being investigated by the CBI, that the central agency cannot be stopped from probing an employee of the central government in another state. The order has been challenged in the Supreme Court.
- In Vinay Mishra vs the CBI, the Calcutta HC ruled in July this year that corruption cases must be treated equally across the country, and a central government employee could not be “distinguished” just because his office was located in a state that had withdrawn general consent. The HC also said that withdrawal of consent would apply in cases where exclusively employees of the state government were involved.

- The petition had challenged the validity of FIRs registered by the CBI's Kolkata branch after the withdrawal of consent.

Current position of CBI in these states

- The agency can use the Calcutta HC order to its advantage until it is — if it is — struck down by the SC.
- Even otherwise, the withdrawal of consent did not make the CBI defunct in a state — it retained the power to investigate cases that had been registered before consent was withdrawn.
- Also, a case registered anywhere else in the country, which involved individuals stationed in these states, allowed the CBI's jurisdiction to extend to these states.
- There is ambiguity on whether the CBI can carry out a search in connection with an old case without the consent of the state government. But the agency has the option to get a warrant from a local court in the state and conduct the search.
- In case the search requires an element of surprise, Section 166 of the Criminal Procedure Code (CrPC) can be used, which allows a police officer of one jurisdiction to ask an officer of another to carry out a search on their behalf.
- And should the first officer feel that a search carried out by the latter may lead to loss of evidence, the section allows the first officer to conduct the search himself after giving notice to the latter.
- Finally, consent does not apply in cases where someone has been caught red-handed taking a bribe.

But what about fresh cases?

- Again, the CBI could use the Calcutta HC order to register a fresh case in any state. Alternatively, it could file a case in Delhi and continue to investigate people inside these states.
- In an order passed on October 11, 2018, Delhi High Court ruled that the agency could probe anyone in a state that has withdrawn general consent, if the case was not registered in that state. The order came on a case of corruption in Chhattisgarh — the court said that since the case was registered in Delhi, the CBI did not require prior consent of the Chhattisgarh government.
- In sum, avenues remain unavailable to the CBI to proceed even without consent. “The CBI could register cases in Delhi if some part of the offence is connected with Delhi, and still arrest and prosecute individuals in these states,” a CBI officer said.

Health account number

(Source: [The Hindu](#))

Context: *The Union Cabinet, chaired by Prime Minister Narendra Modi, has approved the national roll-out of the Central sector scheme Ayushman Bharat Digital Mission (ABDM) of the Ministry of Health and Family Welfare with a budget of ₹1,600 crore for five years.*

Details:

- The National Health Authority (NHA) will be the implementing agency of the Ayushman Bharat Digital Mission (ABDM).
- Under the ABDM, citizens will be able to create their ABHA (Ayushman Bharat Health Account) numbers, to which their digital health records can be linked.
- This will enable creation of longitudinal health records for individuals across various healthcare providers, and improve clinical decision making by healthcare providers.

Ayushman Bharat Programme

The Ayushman Bharat programme was launched in 2018 to address health issues at all levels – primary, secondary, and tertiary. It has two components:

- Pradhan Mantri Jan Arogya Yojana (PM-JAY), earlier known as the National Health Protection Scheme (NHPS)
- Health and Wellness Centres (HWCs)

Ayushman Bharat is an integrated approach comprising health insurance and primary, secondary and tertiary healthcare.

The HWCs are aimed at improving access to cheap and quality healthcare services at the primary level.

PM-JAY will cover the financial protection for availing healthcare services at the secondary and tertiary levels.

Ayushman Bharat is the largest government-funded healthcare programme in the world with over 50 crore beneficiaries.

- The mission is expected to improve equitable access to quality healthcare by encouraging use of technologies such as telemedicine and enabling national portability of health services.
- The pilot of the ABDM was completed in the six Union Territories of Ladakh, Chandigarh, Dadra & Nagar Haveli and Daman & Diu, Puducherry, Andaman and Nicobar Islands and Lakshadweep with successful demonstration of technology platform developed by the NHA.

Naan Mudhalvan scheme

(Source: [The Hindu](#))

Context: *Tamil Nadu Chief Minister M.K. Stalin on Tuesday inaugurated the Naan Mudhalvan scheme.*

Details:

- It aims to equip about 10 lakh youth across the State annually with skills that will help them realise their talents for the benefit of the country.
- The scheme aims to identify, train and offer career and academic guidance to talented students in government-run and State-aided educational institutions.
- It also aims at offering spoken English lessons to enable students to face interview panels successfully.
- The scheme will offer training capsules in coding and robotics to keep pace with technological advancements.
- Psychological counsellors and medical doctors will offer guidance on nutrition, physical fitness and overall development of the student's personality.

Operation Ganga

(Source: [PIB](#))

Context: Prime Minister chaired a high-level meeting to review the ongoing efforts under Operation Ganga to bring back Indians stranded in Ukraine.

Operation Ganga

- India evacuated its stranded citizens from Ukraine via Romania and Hungary through “Operation Ganga”.
- The risky evacuation is taking place in the middle of a war, where Indian professionals are currently stranded in an underground bunker in Ukraine’s capital Kyiv.
- Indian citizens entered Hungary from the Ukrainian border at the Zahony crossing and reached Budapest for the Air India flight.

The history of the Kuki insurgency in Manipur

(Source: [The Hindu](#))

Context: Just before the first of the two phases of the Assembly Elections went underway in Manipur on February 28, all insurgent groups associated with the Kuki tribes in Manipur said they will vote for the Bharatiya Janata Party (BJP). This came days after Union Home Minister and BJP leader Amit Shah said at his rally in Churachandpur district of the State, that his party will end the Kuki insurgency problem in five years, if it is voted to power for the second time. The president of the Kuki National Organisation (KNO), P.S. Haokip, cited talks with the BJP leadership, which he said has promised the speedy settlement of Kuki political aspirations.

Who are the Kukis?

- The Kukis are an ethnic group including multiple tribes originally inhabiting the North-Eastern states of India such as Manipur, Mizoram and Assam; parts of Burma (now Myanmar), and Sylhet district and Chittagong hill tracts of Bangladesh. While Kuki is not a term coined by the ethnic group itself, the tribes associated with it came to be generically called Kuki under colonial rule.
- In Manipur, the various Kuki tribes, living mainly in the hills, currently make up 30% of the total 28.5 lakh population of the State.
- While Churachandpur is their main stronghold, they also have a sizable population in Chandel, Kangpokpi, Tengnoupal and Senapati districts.
- The rest of the population of Manipur is made up mainly of two other ethnic groups — the Meiteis or non-tribal, Vaishnavite Hindus who live in the valley region of Manipur, and the Naga tribes, historically at loggerheads with the Kukis, also living in the hilly areas of the State.

What led to the Kuki insurgencies in Manipur?

- The Kuki insurgent groups have been under Suspension of Operation (SoO) since 2005, when they signed an agreement for the same with the Indian Army.
- Later, in 2008, the groups entered a tripartite agreement with the State government of Manipur and the UPA led Central government under former Prime Minister Manmohan Singh, to temporarily suspend their operations and give political dialogue a chance.
- Manipur, formerly a princely state including parts of Burma, made the accession into India after Independence, but was only made a full-fledged State in 1972.



- The resentment over the “forceful” inclusion into India and delay in granting statehood led to the rise of various insurgent movements. The problem was intensified after Manipur was declared a ‘disturbed area’ in 1980, under the Armed Forces Special Powers Act (AFSPA), which gives sweeping powers to the military and has led to excesses.
- Post-independence insurgent movements in Manipur, carried out by valley-based groups or Meiteis, can be traced back to around the 1960s, when various groups demanded self-determination and separate statehood for Manipur, inspired by left ideology.
- However, this wasn’t the case with the Kuki insurgency. The roots of Kuki militancy lie in conflicts of ethnic identity.
 - First was the demand for self-determination solely for groups belonging to their ethnic fabric, meaning the dream to form a Kukiland which includes Kuki inhabited regions of Myanmar, Manipur, Assam and Mizoram.
 - The second reason for insurgency lies in the inter-community conflicts between the Kukis and the Nagas in Manipur.
- While organisations like Kuki Inpi and Kuki National Assembly had already formed in the years following Independence, insurgent activity at the time was jointly carried out by Kuki outfits based in Myanmar and Mizoram for Kukiland.
- But the Kuki insurgency in Manipur grew in real terms in the 1980s and after the Kuki-Naga conflicts of the 1990s. This is when the Kuki National Organisation (KNO) and its armed wing Kuki National Army (KNA) were formed.
- The community could not shed internal differences between tribes and take a single line of action. While some militant Kuki outfits demanded Kukiland, including parts which are not in India, some demanded Kukiland within India.
- At present, the demand has come to the formulation of an independent district—Kukiland Territorial Council within the purview of the Indian constitution, modelling the Bodoland Territorial Council, which was formed under the sixth schedule of the Constitution, after insurgent groups in Assam signed an agreement with their State government.
- The Kuki-Naga conflict was started over securing identity and land as some Kuki inhabited areas coincided with Naga inhabited areas.
- Wanting to dominate trade and cultural activities in those areas the two communities often engaged in violent standoffs, with villages being torched, civilians killed and so on.
- Even though clashes have reduced in recent decades, tensions between the two ethnic groups still exist.

Amendment of Article 80 of Indian Constitution

(Source: [Indian Express](#))

Context: *The Chandigarh Municipal Corporation approved a proposal to amend Article 80 of the Constitution so that its councillors could send a representative to the Rajya Sabha. Although experts say this move is not legally tenable, the councillors cut across party lines to push it.*

What is a Private Member Bill — The Constitution (Amendment Bill, 2021) and Amendment of Article 80, linked to Chandigarh?

- The Private Member Bill is a bill introduced by a Member of Parliament (MP), who is not a minister. MPs sitting in the Opposition mostly bring Private Member Bills in the house.
- Article 80 of the Constitution of India deals with the composition of the council of states also called the Upper House and Rajya Sabha (Upper House).
- In the case of Chandigarh, the Private Member Bill was introduced by Congress MP from Anandpur Sahib, Punjab, Manish Tewari, who is a resident of Chandigarh.



- Tewari has sought the adding of a provision “provided that the ‘representative of the Union Territory of Chandigarh in the council of states shall be elected by an electoral college consisting of elected members of Municipal Corporation of Chandigarh constituted under the Punjab Municipal Corporation (Extension to Chandigarh) Act, 1994” in Article 80 of the Constitution in clause (5).
- MP Tewari has also sought amendment of the Fourth Schedule of the Constitution with ‘Entry 32, Chandigarh..’

<i>Public Bill</i>	<i>Private Bill</i>
1. It is introduced in the Parliament by a minister.	It is introduced by any 1. member of Parliament other than a minister.
2. It reflects of the policies of the government (ruling party).	It reflects the stand of 2. opposition party on public matter.
3. It has greater chance to be approved by the Parliament.	It has lesser chance to be 3. approved by the Parliament.
4. Its rejection by the House amounts to the exp-ression of want of parliamentary confidence in the government and may lead to its resignation.	Its rejection by the House 4. has no implication on the parliamentary confidence in the government or its resignation.
5. Its introduction in the House requires seven days’ notice.	Its introduction in the House 5. requires one month’s notice.
6. It is drafted by the concerned department in consultation with the law department.	Its drafting is the 6. responsibility of the member concerned.

Where does Chandigarh stand? What are the legal objections?

- Chandigarh is a Union Territory without any legislative assembly. Chandigarh has a seat of Member of Parliament (MP) in the lower house (Lok Sabha) or House of the People.
- Chandigarh residents elect an MP every five years through direct voting. As per the legal opinion submitted by the office of Senior Standing Counsel, Chandigarh, Anil Mehta, the elected Municipal Corporation Councillors do not form the electoral college for selecting a member for Upper house (Rajya Sabha) because it is beyond the powers of the Municipal Corporation.
- The office of the SSC also pointed out that between 1966 and 1990, MPs for Rajya Sabha in Delhi were selected by the members of the Metropolitan Council of Delhi.
- There is a difference between the Metropolitan Council and Municipal Corporation. The opinion suggests that selecting Rajya Sabha MP, is beyond the listed scope of functions of the municipal corporation.
- If the functions of the civic body are to be extended beyond the listed scope of functions it would not be feasible and would go against the constitutional mandate of any such Municipal Corporation.
- As the civic body house gave its assent to the amendment, UT Administration will send it to the Ministry of Home Affairs for further consideration. It will then be forwarded to the Parliament.

Stree Manoraksha Project

(Source: [PIB](#))

Context: *The Stree Manoraksha Project was launched by the Ministry of Women and Child Development.*

About the Project:

- The project aimed at extending mental health training to many One Stop Centre functionaries across the country.
- The event witnessed the participation of representatives from the government, NIMHANS, NALSA and the representatives of One Stop Centre.
- The project is intended to give life and dignity to women and break the cycle of violence by educating women and spreading awareness among them.
- Besides, the Ministry of Women and Child Development is also putting efforts to establish 'Naari Adalat' with the help of NALSA in order to deliver speedy justice to the victims.
- The initiative will also emphasise the security, safety and mental wellbeing of women.
- In collaboration with NALSA, the government implements the 'Nyaya Bandhu' programme to link the persons eligible to avail of free legal aid under section 12 of the Legal Services Authorities Act, 1987 with lawyers.
- Additionally, facilities of tele-law programmes provide free legal advice to the public including persons entitled to free legal aid.

What is co-location?

(Source: [Indian Express](#))

Context: *Multiple agencies are investigating the NSE co-location scam related to the manipulation of the market at the stock exchange, in which several former top officials including former CEOs Chitra Ramakrishna and Ravi Narain are under a cloud.*

What is co-location?

- Co-location is typically associated with a facility where a third party can lease a rack/server space along with other computer hardware.
- Co-location facility provides infrastructure such as power supply, bandwidth, and cooling for setting up servers and storage of data.

What happened at the co-location facility of the NSE that is now being probed by law enforcement agencies?

- There are allegations that some brokers who had leased space at the NSE co-location facility were able to log on to the NSE's systems faster with better hardware specifications while engaged in algorithmic trading, which allowed them unfair access and advantage during the period from 2012 to 2014.
- Even a split-second faster access is believed to result in huge gains for a trader.
- At that time NSE used to disseminate information through unicast, which is a single, direct request sent from one host to another, with only those hosts interacting over the route.
- The Securities and Exchange Board of India (Sebi) found that preferential access was given to stock brokers at NSE's co-location faculty.
- It found that a single stock broker could log on to multiple dissemination servers through multiple IPs assigned to him.



- It also found that brokers could have multiple logins to a single dissemination server through multiple IPs assigned to it.
- This gave at least 15 brokers preferential access.

COLOCATION VS CLOUD

OVERVIEW	Secured space in a data center facility with power, cooling, and connectivity full ownership and complete control of your equipment	Network of servers that act as one-typically over the internet and on a pay-as-you-go basis
LONG TERM VS/ SHORT TERM	For most long-term workloads, investing up-front in server hardware and colocating in a world-class data center is more cost effective	If your business is an early-stage startup or If you expect rapidly changing IT resource demand over short periods of time deploying on-demand cloud services is more cost effective
SERVER HARDWARE PROVIDED BY	Customer	Cloud Provider
RESPONSIBILITY SERVER HARDWARE MAINTENANCE	Customer	Cloud Provider
RESPONSIBILITY STORAGE BACKUP AND RESTORATION	Customer	Customer
RESPONSIBILITY FILE SERVER BACKUP AND RESTORATION	Customer	Usually orchestrated by the provider, on both backup and restore level
ABILITY TO INCREASE CPU, RAM, STORAGE QUICKLY	No, requires site visit and potentially ordering additional servers	Cloud hosting offers more flexibility to scale up- and down as needed
FULL OWNERSHIP	Customer	Cloud Provider

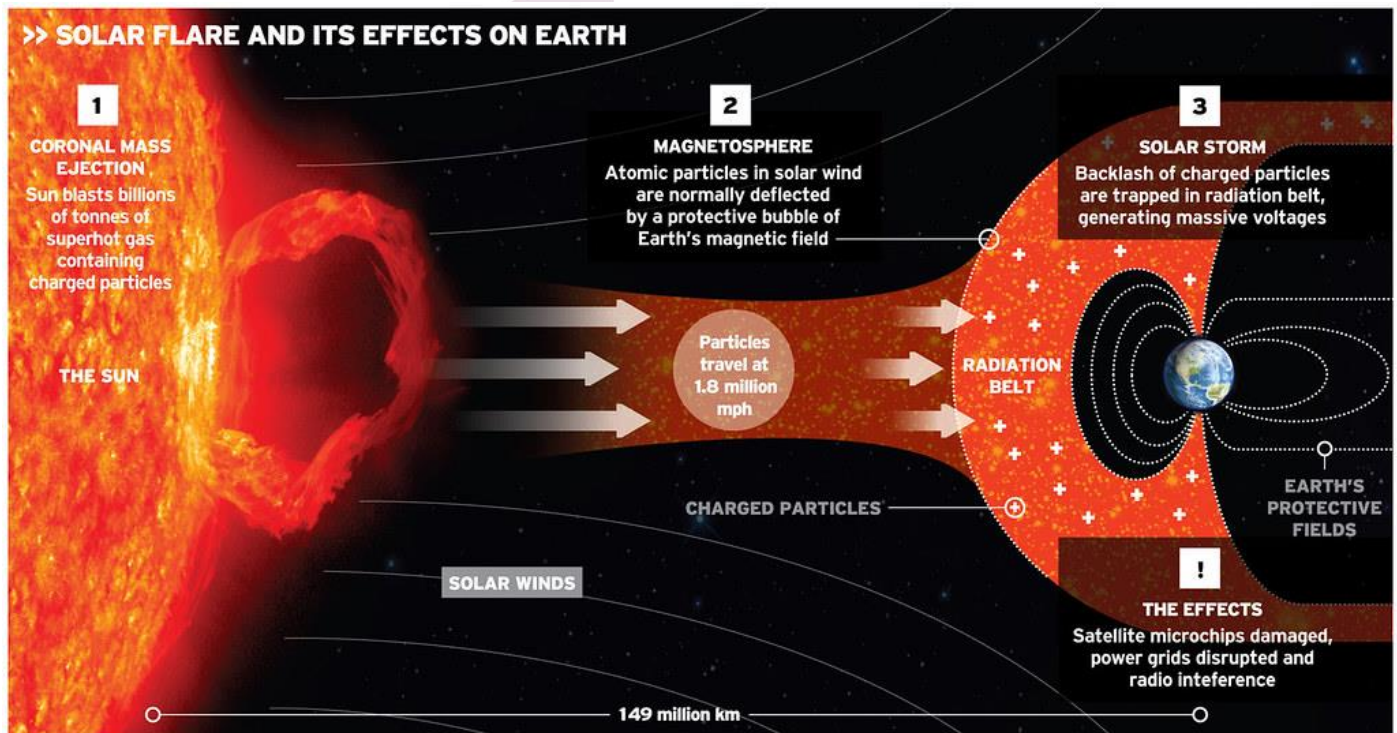
Chandrayaan-2 Orbiter detects solar proton events

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

Context: A Large Area Soft X-ray Spectrometer (CLASS), a payload on-board Chandrayaan-2 Orbiter, has detected solar proton events (SPEs) which significantly increase radiation exposure to humans in space.

Details:

- The instrument on January 18 also recorded coronal mass ejections (CMEs), a powerful stream of ionised material and magnetic fields, which reach the Earth a few days later, leading to geomagnetic storms and lighting up the polar sky with auroras, it said.
- Such multi-point observations help us understand the propagation and its impact on different planetary systems, the ISRO said.
- When the Sun is active, spectacular eruptions called solar flares occur that sometimes also spew out energetic particles (called Solar Proton Events or SPEs) into interplanetary space.
- Most of these are high energy protons that impact space systems and significantly increase radiation exposure to humans in space. They can cause ionisation on large scales in Earth's middle atmosphere, the space agency said.
- Many intense solar flares are accompanied by CMEs, a powerful stream of ionised material and magnetic fields, which reach the Earth a few days later, leading to geomagnetic storms and lighting up the polar sky with auroras.
- Solar flares are classified according to their strength. The smallest ones are A-class, followed by B, C, M and X. Each letter represents a 10-fold increase in energy output. This means that an M class flare is ten times more intense than C-class flare and 100 times intense than B-class flare, the ISRO said.
- Within each letter class there is a finer scale from 1 to 9 - a M2 flare is twice the strength of M1 flare.



NASA's vision

- The SPE event was seen by NASA's Geostationary Operational Environmental Satellite (GOES) satellite orbiting around Earth. However, the CME event was not detected by GOES.
- CME travels at a speed of about 1,000 km/s and it takes about 2-3 days to reach the Earth.
- Planned to land on the South Pole of the Moon, Chandrayaan-2 was launched on July 22, 2019.
- However, the lander Vikram hard-landed on September 7, 2019, crashing India's dream to become the first nation to successfully land on the lunar surface in its maiden attempt.
- The ISRO had then said the mission had achieved 98 per cent of the success as the orbiter continues to share data with the ground station.



INTERNATIONAL

What constitutes a war crime?

Context: *The International Criminal Court (ICC) in The Hague announced that it would open an investigation into possible war crimes or crimes against humanity in Ukraine. In a statement, the prosecutor Karim A.A. Khan QC wrote that there was a “reasonable basis” to open an investigation and that the collection of evidence has now commenced.*

Laws of war

- There are specific international standards for war crimes, which are not to be confused with crimes against humanity.
- War crimes are defined as serious violations of humanitarian laws during a conflict.
- The definition, established by the Rome Statute of the International Criminal Court (ICC) is derived from the 1949 Geneva Conventions and is based on the idea that individuals can be held liable for the actions of a state or its military.
- The UN Office on Genocide Prevention and the Responsibility to Protect separates war crimes from genocide and crimes against humanity.
- War crimes are defined as occurring in a domestic conflict or a war between two states, while genocide and crimes against humanity can happen in peacetime or during the unilateral aggression of a military towards a group of unarmed people.
- There is a long list of acts that can be considered war crimes. The taking of hostages, willful killings, torture or inhuman treatment of prisoners of war, and forcing children to fight are some of the more obvious examples.
- Raids on a cities or villages, bombing residential buildings or schools, and even the killing of groups of civilians do not necessarily amount to war crimes — not if their military necessity is justified.
- The same act can become a war crime if it results in unnecessary destruction, suffering and casualties that exceed the military gain from the attack.

FIFA

Context: *FIFA and UEFA decided to indefinitely suspend all Russian teams, whether national representative teams or club teams, from participation in all competitions run by the two football bodies.*

FIFA

- FIFA, Fédération Internationale de Football Association in French, is the highest global governing body of football (also known as soccer to distinguish it from American football), the world’s most popular game.
- FIFA is also the international governing body for futsal (a kind of mini football played indoors on a hard court between two teams of five players each) and beach soccer (five-a-side, played on a beach).
- Founded over a century ago to oversee international competitions among the national football associations of a handful of West European countries, the membership of FIFA now comprises 211 national football associations around the world.



- Each of these national associations are members of one of the six confederations into which the footballing world is divided: Africa, Asia, Europe, North & Central America and the Caribbean, Oceania, and South America.
- FIFA, which is headquartered in Zurich, Switzerland, supports these national associations financially and logistically through various programmes.
- According to FIFA, these associations, as its representatives, “have obligations to respect the statutes, aims and ideals of football’s governing body and promote and manage our sport accordingly”.

FIFA organisation

- The FIFA Congress is the supreme legislative body of FIFA, in which each of the 211 members of the organisation has a vote.
- The Congress ordinarily meets annually, and members of the Congress propose candidates for the host of the FIFA World Cup and presidency of FIFA.
- In the intervals when the FIFA Congress is not meeting, the FIFA Council is the main decision making body of FIFA.
- The FIFA Council consists of 37 members, including the president, eight vice presidents, and 28 other members elected by the member associations.
- Each member is elected for a term of four years. Each confederation must elect at least one representative who is a woman.

Role of FIFA

- FIFA is responsible for organising and promoting football’s major international tournaments, most importantly the football World Cup, which began in 1930, and the Women’s World Cup which began in 1991.
- The men’s World Cup, held every four years, is FIFA’s marquee event. The next World Cup is scheduled to be held in Qatar in November-December this year.
- Brazil has won the World Cup competition the most number of times (5), followed by Italy and Germany (4 each), and Argentina, France, and Uruguay (2 each).
- FIFA is a member of the International Football Association Board, which sets the rules of football, and it applies and enforces those rules across all FIFA competitions.

What are cluster bombs and thermobaric weapons?

(Source: [Indian Express](#))

Context: *Human rights groups Amnesty International and Human Rights Watch, and Ukraine’s ambassador to the United States Oksana Markarova accused Russia of using cluster bombs and vacuum bombs in the ongoing war.*

What are cluster munitions?

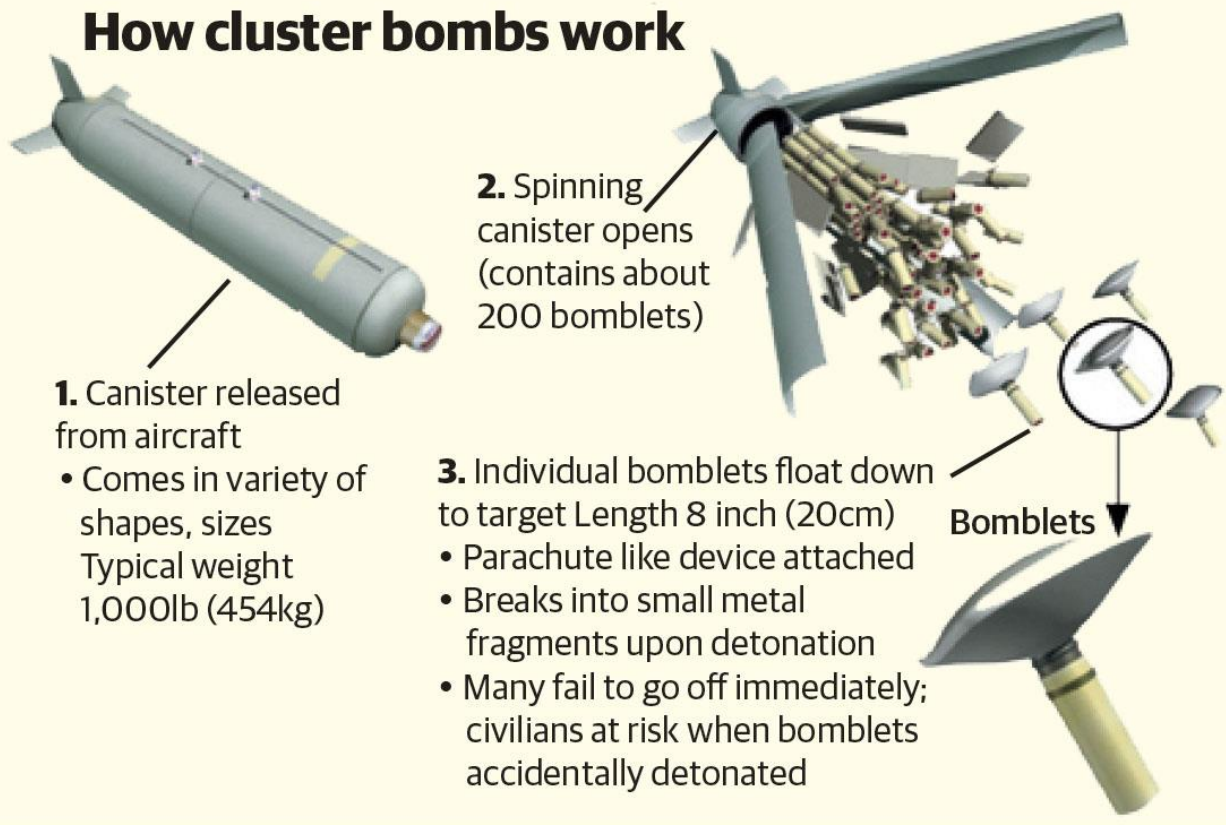
- According to the 2008 Convention on Cluster Munitions, a cluster munition means a “conventional munition that is designed to disperse or release explosive submunitions each weighing less than 20 kilograms, and includes those explosive submunitions”.
- Essentially, cluster munitions are non-precision weapons that are designed to injure or kill human beings indiscriminately over a large area, and to destroy vehicles and infrastructure such as runways, railway or power transmission lines.
- They can be dropped from an aircraft or launched in a projectile that spins in flight, scattering many bomblets as it travels.

- Many of these bomblets end up not exploding, but continue to lie on the ground, often partially or fully hidden and difficult to locate and remove, posing a threat to the civilian population for long after the fighting has ceased.
- The Convention on Cluster Munitions specifically identifies “cluster munition remnants”, which include “failed cluster munitions, abandoned cluster munitions, unexploded submunitions and unexploded bomblets”.

CLUSTER BOMBS

Nearly 100 countries are signing a treaty to ban cluster bombs, while the leading producers of the bombs, including the US, Russia, China and Israel, remain outside the pact.

How cluster bombs work



And what is a thermobaric weapon?

- Thermobaric weapons — also known as aerosol bombs, fuel air explosives, or vaccum bombs — use oxygen from the air for a large, high-temperature blast.
- A thermobaric weapon causes significantly greater devastation than a conventional bomb of comparable size.
- The weapons, which go off in two separate stages, can be fired as rockets from tank-mounted launchers or dropped from aircraft.
- As they hit their target, a first explosion splits open the bomb’s fuel container, releasing a cloud of fuel and metal particles that spreads over a large area.
- A second explosion then occurs, igniting the aerosol cloud into a giant ball of fire and sending out intense blast waves that can destroy even reinforced buildings or equipment and vaporise human beings.





FATHER OF ALL BOMBS: Russia's Aviation Thermobaric Bomb of Increased Power

Referred to as a 'vacuum bomb' because it combines oxygen in the atmosphere to significantly expand the blast radius

Weight	15,560lb
Blast yield	44 tons of TNT
Destruction radius	300 metres
Cost	Unknown



Works by detonating in mid-air

Test-fired by the Russians in 2007, where the temperature produced by the blast was twice as high than that of the US version - making it more deadly



600 metres

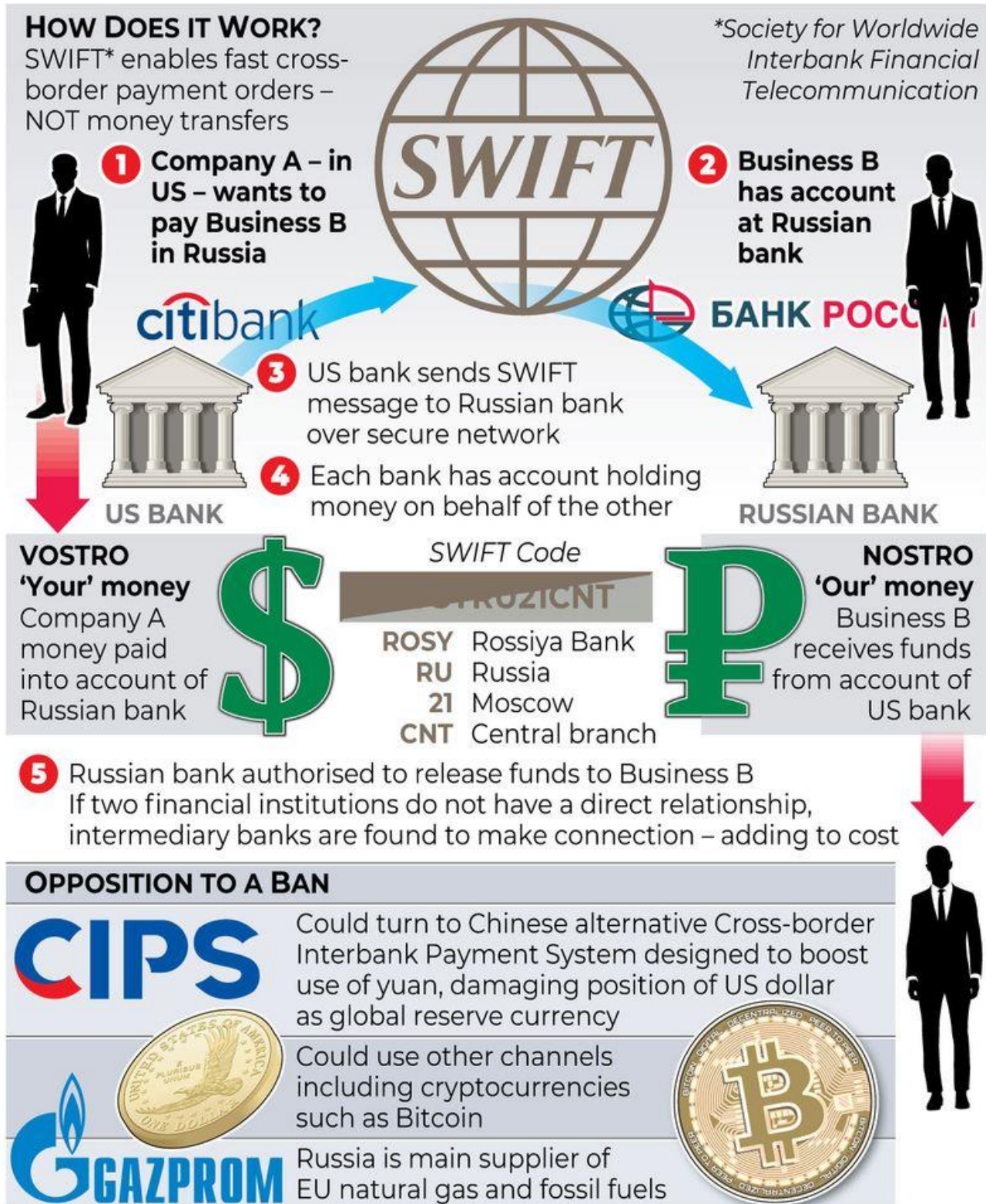
Is it legal to use these weapons?

- Countries that have ratified the Convention on Cluster Munitions are prohibited from using cluster bombs.
- As of date, there are 110 state parties to the convention, and 13 other countries have signed up but are yet to ratify it. Neither Russia nor Ukraine are signatories.
- **Vacuum bombs are not prohibited** by any international law or agreement, but their use against civilian populations in built-up areas, schools or hospitals, could, according to a report in the BBC, attract action under the Hague Conventions of 1899 and 1907.
- Amnesty International said international humanitarian law prohibits the use of inherently indiscriminate weapons such as cluster munitions, Reuters reported.
- Launching indiscriminate attacks that kill or injure civilians constitutes a war crime, the report said.

SWIFT ban on Moscow

(Source: [The Hindu](#))

Context: The United States and European nations agreed to impose the most potentially crippling financial penalties yet on Russia over its unrelenting invasion of Ukraine, going after the central bank reserves that underpin the Russian economy and severing some Russian banks from a vital global financial network.





- The decision has potential to spread the pain of Western retaliation for President Vladimir Putin's invasion to ordinary Russians far more than previous rounds of penalties.
- The central bank restrictions target access to the more than \$600 billion in reserves that the Kremlin has at its disposal, and are meant to block Russia's ability to support the ruble as it plunges in value amid tightening Western sanctions.
- The resulting economic disruption, if Saturday's measures are as harsh as described, could leave Mr. Putin facing political unrest at home.
- The move also includes cutting key Russian banks out of the SWIFT financial messaging system, which daily moves countless billions of dollars around more than 11,000 banks and other financial institutions around the world.

What is the SWIFT banking system?

- SWIFT is a secure messaging system that facilitates rapid cross-border payments and is the principal mechanism for financing international trade.
- It was created in 1973 in Belgium. More than 11,000 banks and institutions in more than 200 countries are connected to the system.
- According to SWIFT system's official website, more than 40 million messages are sent every day, and trillions of dollars are transacted between governments and financial institutions in the same period.

Who controls SWIFT system?

- According to the website, SWIFT is overseen by the G-10 central banks (Belgium, Canada, France, Germany, Italy, Japan, The Netherlands, United Kingdom, United States, Switzerland, and Sweden), as well as the European Central Bank, with its lead overseer being the National Bank of Belgium.
- In 2012, this framework was reviewed and a SWIFT Oversight Forum was established, in which the G-10 central banks were joined by other central banks from major economies: Reserve Bank of Australia, People's Bank of China, Hong Kong Monetary Authority, Reserve Bank of India, Bank of Korea, Bank of Russia, Saudi Arabian Monetary Agency, Monetary Authority of Singapore, South African Reserve Bank and the Central Bank of the Republic of Turkey.

How the sanction would impact Russia?

- If these sanctions are implemented, it would hit Russian trade and make it harder for Russian companies to do business.
- Since Russian companies will lose access to smooth transactions, the companies won't be able to receive payments for energy products like gas and oil.
- Russia was threatened with similar sanctions when it annexed Crimea in 2014. Moscow developed its own cross-border money transfer system, but it is not as advanced and secure as SWIFT
- The West is so far divided over imposing the sanctions but White House spokesperson Jen Psaki said removing Russia from SWIFT "remains an option on the table" and underscored President Joe Biden's preference to take steps together with allies.



Antonov AN-225

(Source: [Indian Express](#))

Context: Amid Moscow's assault on Ukraine, the world's largest cargo aircraft, the Antonov AN-225 or 'Mriya', was destroyed by Russian troops during an attack on an airport near Kyiv.

The Antonov AN-225

- With a wingspan of over 290-feet, the unique Antonov AN-225 was designed in what was then the Ukrainian USSR during the 1980s amid a tense race to space between the United States and the Soviet Union.
- The plane, nicknamed 'Mriya' or 'dream' in Ukrainian, is very popular in aviation circles, and is known to attract huge crowds of fans at air shows around the world.
- It was initially designed as part of the Soviet aeronautical program to carry the Buran, which was the Soviet version of the US' Space Shuttle. After the collapse of the Soviet Union in 1991, when the Buran program was cancelled, the aircraft was instead used to transport massive cargo loads.
- Only one AN-225 was ever built by the Kyiv-based Antonov Company, the defence manufacturers who originally designed the plane. It is essentially a large version of another design by the Antonov company — the four-engine An-124 'Condor', which is used by the Russian Air Force.
- The aircraft first took flight in 1988 and has been in use ever since. In the recent past, it has been used for delivering relief supplies during calamities in neighbouring nations.



IPCC warns of multiple

climate hazards

(Source: [The Hindu](#))



Context: *The world faces unavoidable multiple climate hazards over the next two decades with global warming of 1.5°C, and even temporarily exceeding this warming level would mean additional, severe impacts, some of which will be irreversible, according to a report by the Intergovernmental Panel on Climate Change (IPCC).*

Details:

- Human-induced climate change, including more frequent and intense extreme events, has caused widespread adverse impacts and damage to nature and people. Some development and adaptation efforts have reduced vulnerability.
- Across sectors and regions, the most vulnerable people and systems are observed to be disproportionately affected.
- The rise in weather and climate extremes have led to some irreversible impacts as natural and human systems are pushed beyond their ability to adapt, according to an accompanying statement from IPCC authors, who include scientists from India.
- Lucknow and Patna, according to one of several studies cited in the IPCC report, are among the cities predicted to reach wet-bulb temperature (a metric of humidity) of 35°C if emissions continued to rise. Bhubaneswar, Chennai, Mumbai, Indore, and Ahmedabad are identified as at risk of reaching wet-bulb temperatures of 32-34°C with continued emissions.
- Overall, Assam, Meghalaya, Tripura, West Bengal, Bihar, Jharkhand, Odisha, Chhattisgarh, Uttar Pradesh, Haryana and Punjab will be the most severely affected, but if emissions keep rising, all States will have regions that experience wet-bulb temperature of 30°C or more by the end of the century.

IPCC

- The IPCC – Intergovernmental Panel on Climate Change is a scientific government body under the United Nations set up at the request of the member governments, dedicated to providing the world with an objective, scientific view of climate change and its political and economic impacts on the nations.
 - It was first established in 1988 by two United Nations organizations, the World Meteorological Organization and the United Nations Environment Programme and later endorsed by the United Nations General Assembly.
 - Membership of the IPCC is open to all members of the WMO and the UNEP.
 - The IPCC produces reports that support the United Nations Framework Convention on climate change, which is the main international treaty on climate change. Check out the **list of Reports published by various International organizations** on the given link.
 - The main objective of UNFCCC is to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.
- According to the IPCC report, global sea levels will likely rise 44-76 cm this century if governments meet their current emission-cutting pledges. With faster emission cuts, the increase could be limited to 28-55 cm.
 - But with higher emissions, and if ice sheets collapse more quickly than expected, sea levels could rise as much as 2 m this century and 5 m by 2150.
 - The IPCC authors noted that while progress in adaptation planning and implementation has been observed across all sectors and regions, generating multiple benefits, it was unevenly distributed with observed adaptation gaps.

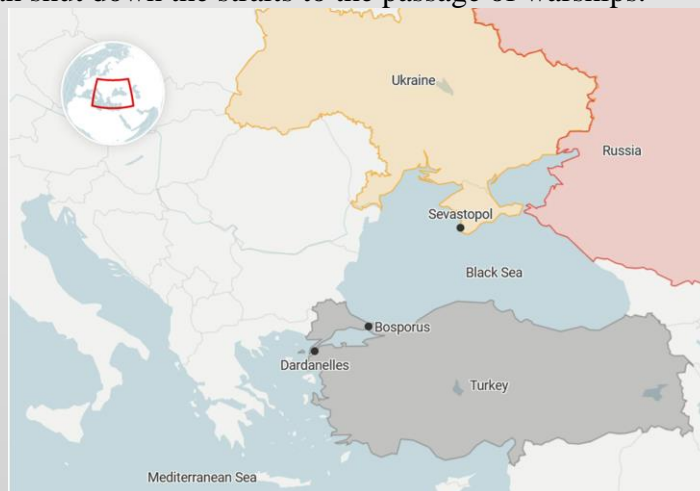
The Montreux Convention

(Source: [Indian Express](#))

Context: Turkey is set to implement an international convention on **naval passage through two of its strategic straits**, which would allow them to limit the movement of Russian warships between the Mediterranean Sea and the Black Sea.

What is the Montreux Convention?

- The convention gives Turkey certain control over the passage of warships from the Dardanelles and Bosphorus Straits that connect the Aegean, Marmara, and Black Sea.
- In peace time, warships can pass the straits by prior diplomatic notification with certain limitations on the weight of the ships and arms they carry -- and depending on whether the ship belongs to a Black Sea nation or not. And at times of war, Turkey can bar the passage of the warships of belligerent parties from crossing.
- According to the convention, if Turkey is a party to the war or considers itself threatened with imminent danger, it can shut down the straits to the passage of warships.



Four key elements in the Montreux Convention regulate which vessels may enter the Black Sea in wartime:

1. Turkey can close the straits to warships of belligerent parties in wartime or when Turkey itself is a party to the war or threatened by aggression from another nation.
2. Turkey can close the straits to merchant ships belonging to countries at war with Turkey.
3. Any country with coastline on the Black Sea – Romania, Bulgaria, Georgia, Russia or Ukraine – must notify Turkey eight days in advance of its intention to send vessels of war through the straits. Other countries, the ones that don't border the Black Sea, must give Turkey 15 days' advance notice. Only Black Sea nations may send submarines through the straits, only with prior notice and only if the vessels are constructed or purchased outside the Black Sea.
4. Only nine warships are allowed to pass through the straits at any one time, and there are limits on how big the ships can be, both individually and as a group. No group of ships may exceed 15,000 metric tons. Modern warships are heavy, with frigates around 3,000 metric tons and destroyers and cruisers around 10,000 metric tons. Modern aircraft carriers are too big to go through, and aren't allowed anyway under Turkish rules.

The only passage to the Black Sea



- The Bosphorus and Dardanelles straits, also known as the Turkish Straits or the Black Sea Straits, connect the Aegean Sea and the Black Sea via the Sea of Marmara. It is the only passage through which the Black Sea ports can access the Mediterranean and beyond.
- Over three million barrels of oil, about three per cent of the daily global supply, mostly produced in Russia, Azerbaijan, and Kazakhstan, pass through this waterway every day. The route also ships large amounts of iron, steel, and agricultural products from the Black Sea coast to Europe and the rest of the world.
- According to the 1936 Montreux Convention Regarding the Regime of the Straits, often referred to simply as the Montreux Convention, Turkey has control over both the Bosphorus and Dardanelles straits.
- In the event of a war, the pact gives Ankara the right to regulate the transit of naval warships and to block the straits to warships belonging to the countries involved in the conflict.

How does this affect Russia?

- Both Russia and Ukraine lie on the Black Sea, along with Romania and NATO members Bulgaria and Georgia.
- Turkey can limit the transit of Russian warships from the Mediterranean to the Black Sea through its straits under the Montreux Convention, but the pact has a caveat: belligerent states' warships can cross if they are returning to their base of origin.
- Russia has enough firepower in the Black Sea that it doesn't make sense for NATO countries to [enter]. Russia has complete supremacy on the water.
- But if the war drags on, Moscow may feel the heat, since Russia had already completed its naval buildup in the Black Sea by shifting units from the Baltic Sea ahead of the start of hostilities.

The International Court of Justice

(Source: [Indian Express](#))

Context: *Ukraine has filed an application before the International Court of Justice (ICJ), instituting proceedings against the Russian Federation concerning “a dispute...relating to the interpretation, application and fulfilment of the 1948 Convention on the Prevention and Punishment of the Crime of Genocide” (the “Genocide Convention”).*

International court of Justice

- The ICJ is the principal judicial organ of the United Nations (UN). It was established in June 1945 by the Charter of the United Nations and began work in April 1946.
- The court is the successor to the Permanent Court of International Justice (PCIJ), which was brought into being through, and by, the League of Nations, and which held its inaugural sitting at the Peace Palace in The Hague, Netherlands, in February 1922.
- After World War II, the League of Nations and PCIJ were replaced by the United Nations and ICJ respectively. The PCIJ was formally dissolved in April 1946, and its last president, Judge José Gustavo Guerrero of El Salvador, became the first president of the ICJ.
- The first case, which was brought by the UK against Albania and concerned incidents in the Corfu channel — the narrow strait of the Ionian Sea between the Greek island of Corfu and Albania on the European mainland — was submitted in May 1947.

Seat and role

- Like the PCIJ, the ICJ is based at the Peace Palace in The Hague. It is the only one of the six principal organs of the UN that is not located in New York City. (The other five organs are the General Assembly, the Security Council, the Economic and Social Council, the Trusteeship Council, and the Secretariat.)
- According to the ICJ's own description, its role is "to settle, in accordance with international law, legal disputes submitted to it by States and to give advisory opinions on legal questions referred to it by authorized United Nations organs and specialized agencies". The court "as a whole must represent the main forms of civilization and the principal legal systems of the world".
- The judges of the court are assisted by a Registry, the administrative organ of the ICJ. English and French are the ICJ's official languages.
- All members of the UN are automatically parties to the ICJ statute, but this does not automatically give the ICJ jurisdiction over disputes involving them. The ICJ gets jurisdiction only if both parties consent to it.
- The judgment of the ICJ is final and technically binding on the parties to a case. There is no provision of appeal; it can at the most, be subject to interpretation or, upon the discovery of a new fact, revision.
- However, the ICJ has no way to ensure compliance of its orders, and its authority is derived from the willingness of countries to abide by them.

Judges of the court

- The ICJ has 15 judges who are elected to nine-year terms by the UN General Assembly and Security Council, which vote simultaneously but separately.
- To be elected, a candidate must receive a majority of the votes in both bodies, a requirement that sometimes necessitates multiple rounds of voting. Elections are held at the UNHQ in New York during the annual UNGA meeting.
- A third of the court is elected every three years. The judges elected at the triennial election commence their term of office on February 6 of the following year. The president and vice-president of the court are elected for three-year terms by secret ballot. Judges are eligible for re-election.
- Four Indians have been members of the ICJ so far.
 - Justice Dalveer Bhandari, former judge of the Supreme Court, has been serving at the ICJ since 2012.
 - Former Chief Justice of India R S Pathak served from 1989-91, and former Chief Election Commissioner of India Nagendra Singh from 1973-88. Singh was also president of the court from 1985-88, and vice-president from 1976-79.
 - Before him, Sir Benegal Rau, who was an advisor to the Constituent Assembly, was a member of the ICJ from 1952-53.

India at the ICJ

- India has been a party to a case at the ICJ on six occasions, four of which have involved Pakistan.
- They are:
 - Right of Passage over Indian Territory (Portugal v. India, culminated 1960);
 - Appeal Relating to the Jurisdiction of the ICAO Council (India v. Pakistan, culminated 1972);
 - Trial of Pakistani Prisoners of War (Pakistan v. India, culminated 1973);
 - Aerial Incident of 10 August 1999 (Pakistan v. India, culminated 2000);
 - Obligations concerning Negotiations relating to Cessation of the Nuclear Arms Race and to Nuclear Disarmament (Marshall Islands v. India, culminated 2016); and
 - (Kulbhushan) Jadhav (India v. Pakistan, culminated 2019).



What is Genocide Convention?

- The Convention on the Prevention and Punishment of the Crime of Genocide (Genocide Convention) is an instrument abiding by the international law which codified the crime of genocide for the first time.
- Its preamble says, “at all periods of history genocide has inflicted great losses on humanity” and that international cooperation is required to “liberate humankind from such an odious scourge”.
- As written in the convention, genocide is a crime that can take place in war time and also in the time of peace.
- The definition of Genocide is mentioned in Article II of the Convention. It describes genocide as a crime committed with the intent to destroy a national, ethnic, racial or religious group, in whole or in part.
- The definition reflects the compromise reached among United Nations Member States while drafting the Convention in 1948.

What is included in Genocide?

Genocide means any of the following acts committed with intent to destroy, in whole or in part, a national, ethnical, racial or religious group, as such:

- Killing members of the group
- Causing serious bodily or mental harm to members of the group;
- Deliberately inflicting on the group conditions of life calculated to bring about its physical destruction in whole or in part
- Imposing measures intended to prevent births within the group
- Forcibly transferring children of the group to another group

Mains

GS II

The Ukraine war, India and a stand of non-alignment

(Source: [The Hindu](#))

Context: India's war with China ended in 1962. Sixty years later, we still do not know all the truth about that war. The Henderson Brooks report that delved deeply into the circumstances leading up to the war and the conduct of the military operations has still not been made public, though many claim to have read it. The reason it has not been made public, it is believed, is that it does not reflect well on the army. Even if true, how will it reflect poorly on today's Indian Army? It is interesting that even BJP governments have refrained from making it public.

For Ukraine and the West

- So, we will hear claims and counter claims about the Russian invasion of Ukraine. It is widely recognised that Russia has legitimate security concerns.
- The North Atlantic Treaty Organization (NATO) is already at its doorstep.
- The saga of broken promises and commitments, albeit oral, given at the highest level by the West to Russia that NATO will not be expanded eastwards, closer to Russia, is well documented.
- However, that does not justify the invasion of Ukraine. Also, it is not clear how this war will take care of Russian security concerns.
- Even if the West agrees to give such assurance in writing, it will not have much meaning since written commitments can also be equally easily disregarded. The President of Ukraine ought to have been more flexible in devising some formula which would have accommodated Russia's concerns, as for example by announcing adherence to the Minsk agreements.
- He knew, and knows, that the only country which would suffer heavy casualties and suffer incalculable destruction, is his own. The West could also have been more innovative. The distrust towards Russia lies deep in the western psyche.
- A large part of the world has condemned the Russian invasion. Quite rightly too, since it is a gross violation of the universally accepted principle of respect for the sovereignty and territorial integrity of states. Ukraine is a sovereign state, founding member of the United Nations.
- It may be recalled that the Soviet Union wanted all the Soviet Republics to be admitted to the newly founded United Nations. Ultimately a compromise was struck and only two republics — Ukraine and Byelorussia as Belarus was then called — were admitted.
- Thus, Russia has surely violated the most important principle of international law. Does concern about its security perceptions justify the invasion?
- Ukraine is in no position to defend itself against Russian might. It was widely expected that it would be a short, decisive war.
- There is no doubt that Russia can and will prevail, but if it has to take Belarus's help in doing so, it will not redound well to Mr. Putin's credit.
- The resistance put up by the Ukrainian people under President Volodymyr Zelensky's leadership is impressive. But what thereafter?



Challenging for India

- India is in a difficult position. On the one hand, there is the growing relationship with the United States. As is often maintained, India-U.S. relations have never been better.
- This is true especially in the defence sector. Much is also made of the famous Quad (India, the United States, Australia and Japan) which is essentially an arrangement to contain China. How that helps India, the only one in Quad having a territorial dispute with China, is not clear.
- On the other hand, there is Russia with whom we have a long-standing history of friendship, which is still our principal source of military hardware and which is willing, more than other countries, to share the technology involved. Russia has also helped us out in the United Nations on many occasions.
- One can hardly forget how they stalled action in the UN for several days at the time of the 1971 Bangladesh war to enable us to 'finish the job'. We might need Russian support in future as and when Pakistan, fully backed by China, brings up the Kashmir issue in the world organisation.
- Under the circumstances, the Government had done well by maintaining a kind of neutral position. It is a demonstration of the classical Nehruvian policy of non-alignment. There are influential voices in India that speak derisively of non-alignment but that is precisely what we are witnessing the Government do. Yes, the Russian invasion is wrong by every principle of international law.
- But the only lasting principle in foreign policy is the principle of national interest. Jawaharlal Nehru even called it a selfish policy. National interest will always trump principles.
- That is what Nehru did at the time of the Soviet Union marching with tanks into Hungary in 1956; he did not condemn the Soviet action. Our stand stood out in stark contrast to our stand on the Anglo-French-Israeli aggression on Egypt, which we condemned, when it nationalised the Suez Canal the same year.
- However, if the war continues, resulting in large number of civilian casualties, and given the nuclear alert, Belarus's renouncing of non-nuclear status, the indiscriminate bombing of major cities, will all make it extremely difficult for us, India, to maintain the non-aligned position for long.

Staying healthy, eating less

(Source: [The Hindu](#))

Context: *A 2016 study revealed obese people outnumber underweight individuals.*

Details:

- For modern humans, three meals a day may seem to be the ideal formula for being healthy and wise.
- Yet, evolutionarily speaking, our bodies are adapted to occasional periods of fasting, as a constant supply of food was not always guaranteed.
- Fasting is certainly a part of our heritage, being prevalent in a range of cultures – from Ekadashi to Karwa Chauth among Hindus; the Yom Kippur for Jews, Paryushana among Jains, Ramzan among Muslims, the Christian period of Lent, and so on.
- One wonders if widespread prevalence points to health benefits in addition to the discipline of the mind.
- In 2016, a study of data from 186 countries in the journal The Lancet revealed that obese people now outnumber underweight individuals.
- Our lifespans, too, are much longer than they were two generations ago. Together, these trends have added greatly to the disease burden of society, and other than exercise, only fasting and caloric restriction (CR) have consistently been shown to extend a healthy lifespan.

Fasting versus CR

- Fasting and CR are not synonymous. CR results from reducing caloric intake by 15% to 40%, without leading to malnutrition.
- There are several strategies for fasting. In intermittent fasting (IF), you alternate a 24 hour period without any food (or with no more than 25% of your dietary norm) with 24 hours of normal eating.
- In periodic fasting you fast for one or two days followed by five days of normal diet.
- In time-restricted feeding (TRF), all daily intake is done within a 4–12 hour window. In an example of a fasting-mimicking diet (FMD) you reduce intake to 30% of your energy requirements for five consecutive days, once every month.
- In addition, the ratio of fats, proteins and carbohydrates may be altered during reduced intake to favour more fat.

Hara hachi bu

- The island of Okinawa in Japan has an exceptional number of healthy centenarians because adults practice Hara Hachi Bu – stopping eating when they are 80% full (CR). Buddhist monks of certain sects eat their last meal at noon (TRF).
- These strategies have been examined in a large number of studies on rodents and on humans – we humans often have difficulty in sticking to restricted diets! When properly adhered to, these practices have been shown to prevent obesity, to protect against oxidative stress and hypertension. They also mitigate and postpone the onset of several age-related diseases.
- Careful monitoring and expert advice is essential for choosing suitable strategies based on individual circumstances such as age.

Glycogen reserves

- We store glucose in the form of glycogen in the liver, and the energy demands of the body are met from this reservoir. One day of fasting leads to a 20% decrease in blood sugar levels and depleted glycogen reserves.
- The body switches to a metabolic mode where energy is obtained from fat-derived ketone bodies and from glucose outside the liver. Insulin levels are lowered and lipolysis burns away lipid triglycerides in adipocytes.
- The metabolic syndrome is a group of risk factors that are predictors of heart disease and diabetes.
- The work of Satchidanand Panda at the Salk institute has highlighted the benefits of a 10-hour TRF on sufferers, and noted improvements in blood pressure, heart-rate variability and physical endurance (Longo and Panda, Cell Metabolism, 23, 1048–1059 (2016)).

Gut microbiome

- IF has also been shown to cause a remodelling of the gut microbiome. Bacterial diversity goes up, and there is a rise in bacterial species that produce short-chain fatty acids, which are known to thwart inflammation-mediated conditions such as ulcerative colitis.
- In the fruit fly, prolonged overnight fasting promotes a recycling process inside cells called autophagy (Latin for self-devouring).
- This results in a 15%-20% extension in lifespan (Ulgherait, M. et al, Nature, 598, 353–358 (2021)). Autophagy mostly occurs at night and is modulated by the body's circadian clock.
- Autophagy is essential for the fitness and survival of neurons; errors in this process lead to Parkinson's disease.
- A plentiful supply of nutrients represses autophagy and activates pathways that promote the biosynthesis of proteins and thus of rejuvenation.
- This dynamic control of degradation and rejuvenation suggests that IF, TRF, FMD and periodic fasting may be better for the body than chronic caloric restriction.,



- A few small organic molecules – rapamycin, metformin and resveratrol – appear to affect our metabolic pathways in ways that mimic the effects of fasting.
- Could it turn out that some day we could be able to imbibe carefully tailored pills and eat our cake, but not put on weight ?

History of Russia-Ukraine conflict

(Source: [The Hindu](#))

Context: *In an address to the nation on February 21, Russian President Vladimir Putin announced his decision to recognise the two breakaway republics of Ukraine — Donetsk and Luhansk — as independent states, which turned out to be a prelude for Russia's eventual military operation in the region.*

What was the context of the USSR's collapse?

- The unravelling of Soviet power began in the late 1980s with protests in the Eastern Bloc as well as in Soviet republics and the ignominious Soviet exit from Afghanistan.
- The Soviet Union sent troops to Afghanistan in 1979 to prop up the communist regime and after 10 years of fighting the Mujahideen, who were backed by the U.S., Pakistan and Saudi Arabia, the Soviets had to pull back in February 1989.
- Within months, Soviet-backed communist regimes in Eastern Europe started collapsing, practically bringing the Cold War to an end. It started in Poland, which hosted the headquarters of the Soviet-led Warsaw Pact security alliance.
- Protests spread to Hungary, East Germany, Bulgaria, Czechoslovakia and Romania. In June 1989, the anti-communist Solidarity movement, led by Lech Wałęsa, won an overwhelming victory in a partially free election in Poland, leading to the peaceful fall of communist rule.
- It triggered a chain reaction across the Eastern Bloc. In November 1989, the Berlin Wall that had separated the capitalist West Berlin and the communist east, fell, leading to the German reunification a year later.
- Domestically, the Soviet Union was going through a tough economic phase. Mikhail Gorbachev, the last leader of the Soviet Union, stated that “an era of stagnation” gripped the country in the mid-1960s. By the time Gorbachev became the Soviet leader in 1985, the USSR was already in dire straits.
- Foreign trade was falling. Lower oil prices led to a fall in state revenues and an explosion in debt. Gorbachev introduced economic reforms, such as decentralisation (perestroika) and opening up of the economy for foreign trade.
- The reforms made the nationalists in the Soviet republics (administrative units) stronger, but failed to revitalise the economy.

How did the Soviet disintegration unfold?

- The fall of communist states in the Eastern Bloc and the economic stagnation within the country had a debilitating impact on Moscow's hold over the Union.
- In 1988, Estonia, a tiny republic on the Baltic coast, became the first Soviet administrative unit to declare state sovereignty inside the Union. On March 11, 1990, Lithuania, another Baltic republic, became the first to declare independence from the USSR.
- The old regime was falling under its own weight. The Eastern Bloc had collapsed. After the German reunification, the North Atlantic Treaty Organization (NATO) expanded to East Germany.
- Crisis was spreading across the Soviet republics and Gorbachev was planning to decentralise much of the central government's powers to the 15 republics through the New Union Treaty, which was also a bid to renegotiate the original treaty that established the USSR in 1922.



- In August 1991, faced with the crisis in the Union, a group of communist hardliners, including top military and civilian leaders, tried to take power in their hands by ousting Gorbachev in a coup.
- But the coup failed, and a further weakened Gorbachev continued to cling on to power. On December 8, 1991, leaders of three Soviet republics—Russian President Boris Yeltsin, Ukrainian President Leonid Kravchuk and Belarusian Prime Minister Vyacheslav Kebich — signed Belavezha Accords, announcing that the USSR no longer existed.
- They also announced the establishment of the Commonwealth of Independent States (CIS) that would replace the USSR. Within weeks, Gorbachev announced his resignation.



What are Russia's equations with the former Soviet States?

- Of the former Soviet republics, nine are members of the CIS -- Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Uzbekistan. And Turkmenistan is an associate member. Russia retains enormous influence in these countries.
- Russia has also formed a security organisation, the Collective Security Treaty Organisation (CSTO), with former Soviet republics.
- Armenia, Belarus, Kazakhstan, Kyrgyzstan and Tajikistan are CSTO members, besides the Russian Federation. Of the 15 republics that became independent after the fall of the Soviet Union, the three Baltic countries — Latvia, Lithuania and Estonia, all sharing borders with Russia — became members of NATO in 2004. Ukraine and Georgia were offered NATO membership in 2008.
- But in the same year, Russia sent troops to Georgia in the name of protecting two breakaway republics — South Ossetia and Abkhazia — against attacks from Georgian troops. In 2014, Russia annexed the Crimean republic, a Black Sea Peninsula, from Ukraine.
- This month, Russia recognised two more breakaway republics from Ukraine — Luhansk and Donetsk in the Donbas region — and sent troops there.
- Russia also maintains a military presence in Transnistria, a breakaway republic from Moldova, and has dispatched troops to the borders between Armenia and Azerbaijan in 2020, to end a conflict between the two countries over Nagorno Karabakh (Republic of Artsakh), another breakaway republic.

Why did Ukraine fall out with Russia?

- After it became independent in 1991, Ukraine largely adopted a neutral foreign policy.
- It was one of the founding members of the CIS, but did not join the CSTO, the security organisation.
- Ukraine stayed away from NATO as well. But the NATO offer of membership in 2008 started changing equations between Moscow and Kyiv.
- After the regime of pro-Russian Viktor Yanukovich was brought down in the 2014 Euromaidan protests and a pro-West government was established in Kyiv, relations turned hostile.
- Russia moved swiftly to take Crimea, which also hosts Russia's Black Sea fleet, and started supporting separatist rebels in Donbass.
- Ukraine later exited the CIS and wrote its desire to join NATO into its Constitution.
- These developments pulled the countries apart, setting the stage for permanent hostility, which led to the current conflict.

The anatomy of India's Ukraine dilemma

(Source: [The Hindu](#))

Context: *New Delhi's response to the Russian aggression against Ukraine appears to have been shaped by harsh geopolitical circumstances, that it is in the middle of, than its normative beliefs or preferences. Late last week, India abstained from a United Nations Security Council (UNSC) resolution which called for condemning the Russian military action against Ukraine, but it went on to note its uneasiness of the Russian action in writing (a first).*

The Russia tilt

- There are four potential options India can/could choose from: Condemn Russian aggression, support Russian aggression, stay silent on Russian aggression, or express displeasure (short of condemning) and call for diplomacy.
- The first option will pit India against Russia, the second will pit it against the U.S. and its allies, the third option will be read as pro-Russia, and the fourth option — which it has taken — is the least harmful.
- And yet, a position that does not condemn Russian aggression and one that abstains from voting on a UNSC resolution calling for “condemning Russian aggression and withdrawal of Russian forces from Ukraine” is indeed a pro-Russia position.
- There are understandable reasons for India's (subtle) pro-Russia position. Let me put it this way: an aggressive Russia is a problem for the U.S. and the West, not for India. North Atlantic Treaty Organization (NATO) expansion is Russia's problem, not India's. India's problem is China, and it needs both the U.S./the West and Russia to deal with the “China problem”.
- Let us look at the big picture first. There is today a sobering recognition in New Delhi about the weakening of the U.S.-led global order and the rise of China as a counter-pole, geographically located right next to India. U.S. withdrawal from the region and its decline as the principal system shaper has complicated India's place in regional geopolitics.
- Neighbouring China as the rising superpower and Russia as its strategic ally challenging the U.S.-led global order at a time when China has time and again acted on its aggressive intentions vis-à-vis India, and when India is closest to the U.S. than ever before in its history, throws up a unique and unprecedented challenge for India.
- Therefore, having Russia on its side is crucial for India, more than ever. Moscow may or may not be able to moderate Chinese antagonism towards New Delhi, but an India-Russia strategic partnership may be able to temper New Delhi's growing isolation in a rather friendless region.



- Second, there is an emerging dualism in contemporary Indian strategic Weltanschauung: the predicament of a continental space that is reeling under immense pressure from China, Pakistan and Taliban-led Afghanistan adding to its strategic claustrophobia; and, the emergence of a maritime sphere which presents an opportunity to break out of the same.
- Herein lies the dilemma for India. New Delhi needs Moscow's assistance to manage its continental difficulties be it through defence supplies, helping it 'return' to central Asia, working together at the Shanghai Cooperation Organization (SCO) or exploring opportunities for collaboration in Afghanistan.
- Russia, to put it rather bluntly, is perhaps India's only partner of consequence in the entire Asian continental stretch.
- On the other hand, when it comes to the vast maritime sphere, the Indo-Pacific to be precise, Russia is not of great consequence to India. That is where its American and western partners come into play.
- India is simply not in a position to address the China challenge in the maritime space without the active support of American and western navies and, of course, the Quad.
- This unavoidable dualism in the contemporary Indian strategic landscape necessitates that India balances the two sides, but doing so without a subtle Russia tilt may not be feasible at this point of time.
- That said, the war on Ukraine could have major implications for India's strategic calculus.
 - For one, Russian action in Ukraine dismissing the concerns of the rest of the international community including the U.S. will no doubt embolden China and its territorial ambitions.
 - Second, the new sanctions regime may have implications for India's defence cooperation with Moscow. Third, the longer the standoff lasts, the closer China and Russia could become, which certainly does not help India.
 - Finally, the more severe the U.S.-Russia rivalry becomes, the less focus there would be on the Indo-Pacific and China, which is where India's interests lie.

Impact on foreign policy

- India's responses to the Russian aggression on Ukraine underline the fact that India is operating from a position of geopolitical vulnerability. While the Indian stand does reek of realpolitik, it reeks more of strategic weakness.
- Here is a country located in a hostile neighbourhood trying to make the best of a terrible situation it finds itself in. This then means that, going forward, India's ability to be a "swing state", "major power" or a "leading power" stands diminished.
- So we must expect more middle-of-the-road behaviour from New Delhi rather than resolute positions on global strategic developments.
- India's position also shows the unmistakable indication that when it comes to geopolitics, New Delhi will choose interests over principles. This is nothing new: New Delhi has chosen interests over principles even in the past — for instance, India has violated the principle of non-intervention in the domestic affairs of neighbours.
- The difference this time may be that India is choosing interests over principles even though the issue at hand is not directly pertaining to India.
- And yet, a careful reading of India's statements and positions taken over the past few days also demonstrates a certain amount of discomfort in having to choose interests over principles.
- There is perhaps a realisation in New Delhi that a dog-eat-dog world, where rules and good behaviour do not matter, does not help India in the long run either.
- Going forward, if tensions between Russia and the West persist, balancing extremes will be a key feature of Indian diplomacy. India is perhaps already mastering the art.
- Consider India's "explanation of vote" during the recent vote on Russia's aggression against Ukraine: even though New Delhi abstained from voting on it (thereby siding with Moscow), it made its unhappiness about the Russian action clear in the written note.



On strategic autonomy

- Finally, what does this mean for India's 'strategic autonomy'? For sure, India's strategic autonomy has been under a lot of stress for some time now.
- However, New Delhi's response to the recent crisis, especially its "explanation of vote" at the UNSC indicates a careful recourse to the principle of strategic autonomy: India will make caveated statements and will not be pressured by either party.
- In that sense, India's indirect support to the Russian position is not a product of Russian pressure but the result of a desire to safeguard its own interests.
- Therefore, while we may witness a steady erosion of India's strategic autonomy in the longer term — primarily as a function of the need to balance against China — we will continue to witness instances where Indian diplomacy will take recourse to the principle of strategic autonomy.



GS III

Tackling the plastic problem

(Source: [The Hindu](#))

Context: A report released by the United Nations Environment Programme (UNEP) last year estimated that emissions of plastic waste into the aquatic ecosystems may triple by 2040 if no meaningful action is taken. Thus, the UN Environment Assembly meeting in February-March 2022 may finalise a way forward for global cooperation in this regard.

A negative externality

- Plastic products in the form of bags, bottles, etc. are convenient, but take a very long time to decompose. Increasing global consumption and low participation in recycling programmes have led to more plastic waste.
- This pushes us to consider plastics as a negative externality. We need to analyse the social costs of plastic consumption, which is mainly the loss of marine life.
- This affects the livelihoods of a major chunk of population dependent on marine life. Marine fisheries and wildlife are mainly harmed due to plastics. Thus, the size of harm is alarming.
- Plastics represent an example of a consumption externality, which involves many people, rather than a production externality, which involves one or multiple firms. Consumption externality is more challenging to address, as it is difficult to differentiate the behaviour of consumers.
- Imposing the cost of the harm on all consumers may not yield efficient solutions. As the number of consumers is high, the cost of controlling them is also high.
- A number of regions across the world have banned plastic bags. This approach promotes a sustainable environment, intergenerational equity, saves marine and wildlife ecosystems, and restores soil quality.
- But it also causes inconvenience for consumers, increases substitution cost, and creates unemployment shocks as it affects the production of plastics, leading to less economic activity, less income generation and finally less employment. The replacement of plastics, which are low cost, with substitutes results in deadweight loss for the economy.
- Other key aspects that may be considered for global cooperation are the options if plastics are banned, the effectiveness of imposing tax and the potential problems with both these approaches. It is difficult to identify the exact tax to be imposed, which may depend on country-specific circumstances.
- The environment regulation for plastics may include a ‘command and control’ approach, and fiscal reforms like eco-taxes or subsidies. The efficiency of such a regulation depends on its architecture — how well it is planned, designed and executed. It should be credible, transparent and predictable.
- A tax rate, in particular, needs to be carefully determined and should work as a deterrent. In general, the rate of tax on plastics should be higher than the cost of compliance.
- Eco-taxes may be imposed in the various stages of production, consumption or disposal of plastics. Pollution due to plastics may happen during the production stage. That is the logic for imposing tax on polluting inputs, as it forces the producer to look for cleaner substitutes.
- Pollution also occurs during the consumption stage, and thus an eco-tax is recommended to discourage consumption.
- This may require the polluters or the pollution-controlling authority to install meters for recording the emission or the effluent discharged in the process of production or consumption of plastics.



Estimating the social cost

- Social cost should be evaluated differently in the local/regional and global contexts. While health and hygiene are predominant considerations in the former case, climate change is the predominant consideration in the latter.
- Ideally, eco-tax rates on plastics ought to be equal to the marginal social cost arising from the negative externality associated with production, consumption or disposal of goods and services.
- This requires evaluation of damage to the environment based on scientific assessment of the adverse impacts on health, environment, etc. The eco-tax rate on plastics may thus be fixed commensurate to the marginal social cost so evaluated.
- Thus, comprehensive policy measures against plastics may generally involve three complementary activities: the removal of existing taxes and subsidies that have a negative environmental impact, taking into account the different types or grades of plastics, and restructuring existing taxes in an environmentally friendly manner.
- There are some other suggestions too, which may be creative as also effective policy solutions to reduce the amount of plastic consumption.
- Those include promoting multiple use of plastics through better waste management, educating the public on the harmful use of plastics, providing subsidy for research and development activity for substitute development, appropriate disposal mechanisms and waste management and use of waste for constructive usage like roads.

Role of MIIs

(Source: [The Hindu](#))

Context: *The National Stock Exchange (NSE), the country's largest equities and derivatives exchange, was earlier this month fined for laxity in governance pertaining to actions taken during the tenure of its former MD and CEO Chitra Ramkrishna. Markets regulator SEBI (Securities and Exchange Board of India) passed a 190-page order sanctioning the NSE, Ms. Ramkrishna, her predecessor Ravi Narain and a former Group Operating Officer Anand Subramanian, whose appointment by Ms. Ramkrishna was the primary matter under investigation, and levied financial penalties on each of them. However, the regulator too has come under a cloud for not acting quickly enough on the complaints it had received against the NSE management and on forensic audit reports that had shown irregularities in Ms. Ramkrishna's discharge of her professional duties. In setting the context for its order, SEBI noted that the NSE was a systemically important market infrastructure institution (MII).*

What are MIIs?

- Stock exchanges, depositories and clearing houses are all Market Infrastructure Institutions and constitute a key part of the nation's vital economic infrastructure.
- A panel set up under the chairmanship of former RBI Governor Bimal Jalan — to examine issues arising from the ownership and governance of MIIs — in its 2010 report said: “The term ‘infrastructure’ would mean the basic, underlying framework or features of a system; and the term ‘market infrastructure’ denotes such fundamental facilities and systems serving this market.
- The primary purpose of securities /capital market is to enable allocation/reallocation of capital/financial resources.” Such movement, it pointed out, helped optimal use of money in the economy and fostered economic development.
- Well-functioning MIIs, constitute “the nucleus of (the) capital allocation system”, are indispensable for economic growth and have a net positive effect on society like any other infrastructure institution, the panel noted.

Why are they considered to be systemically important?

- That MIIs are systemically important in India is clear from the phenomenal growth of these institutions in terms of market capitalisation of listed companies, capital raised and the number of investor accounts with brokers and depositories and the value of assets held in the depositories' account, as highlighted by the Jalan committee.
- Unlike typical financial institutions, the number of stock exchanges, depositories and clearing corporations in an economy is limited due to the nature of its business, although they cater to the entire marketplace, the panel pointed out.
- “Any failure of such an MII could lead to even bigger cataclysmic collapses that may result in an overall economic downfall that could potentially extend beyond the boundaries of the securities market and the country,” it observed.

Why are governance norms critical in the regulation of MIIs?

- Given the potential for a domino effect that a failure of an MII could have on the wider market and economy, governance and oversight are absolutely critical and need to be of the highest standards.
- Take the example of a technical glitch at the NSE early last year. Investors were not able to trade for about four hours.
- It prompted the Finance Minister to later state that the loss for the country had been ‘immense’ due to the delay in resumption of trading on the platform and that switching over to another platform should have been seamless.
- Markets regulator SEBI later set out norms stipulating timelines within which an exchange has to take action if its technology fails, including rules for switchover to backup servers as part of the disaster recovery in an institution that enables transactions running into thousands of crores of rupees daily.
- For context, the average daily turnover at the NSE in January this year was ₹64,178 crore.

What are the specific institutions in India that qualify as MIIs?

- Among stock exchanges, the SEBI lists seven, including the BSE, the NSE, the Multi Commodity Exchange of India and the Metropolitan Stock Exchange of India.
- There are two depositories — charged with the safekeeping of securities and enabling their trading and transfer — that are tagged MIIs: the Central Depository Services Ltd. and the National Securities Depository Ltd.
- The regulator also lists seven clearing houses including the Multi Commodity Exchange Clearing Corporation. Clearing houses, for their part, help validate and finalise securities trades and ensure that both buyers and sellers honour their obligations.

Reporting cyber attacks

(Source: [The Hindu](https://www.thehindu.com/news/national/article3841111.ece))

Context: *The Ministry of Electronics and Information Technology is likely to come out with new cyber security regulations, as indicated by Minister of State Rajeev Chandrasekhar at a recent cyber security event. The essence of this regulation will be to put the onus on organisations to report any cyber crime that may have happened against them, including data leaks. Clause 25 in the Data Protection Bill 2021 says that data fiduciaries should report any personal and non-personal data breach incident within 72 hours of becoming aware of a breach. Even the golden standard for data protection, namely the European Union General Data Protection Regulation (EU GDPR), has a clause for reporting data breach incidents within a stringent timeline.*

Security breaches

- While this, in principle, is likely to improve cyber security and reduce attacks and breaches, why are there continuing breach incidents every minute?
- According to Cybercrime Magazine, if it were measured as a country, then cyber crime — which is predicted to inflict damages totalling \$6 trillion globally in 2021 — would be the world's third-largest economy after the U.S. and China.
- Apart from private firms, government services, especially critical utilities, are prone to cyber attacks and breach incidents. The ransomware attack against the nationwide gas pipeline in 2021 in the U.S. virtually brought down the transportation of about 45% of all petrol and diesel consumed on the east coast.
- Hence it is important that even cyber attacks on government and state-owned enterprises be reported so that corrective actions can be taken on the security of critical infrastructure of the nation.
- What is the logic behind incidence reporting? If incidences are reported, the Indian Computer Emergency Response Team and others can alert organisations about the associated security vulnerabilities. Firms not yet affected can also take precautionary measures such as deploying security patches and improving their cyber security infrastructure.
- But firms are reluctant to notify the breach incidents to the regulators. This is because any security or privacy breach has a negative impact on the reputation of the associated firms.
- An empirical study by Comparitech indicates that the share prices for firms generally fall around 3.5% on average over three months following the breach.
- In the long term, breached companies underperformed in the market. After one year, share price of breached firms fell 8.6% on average, resulting in a poor performance in the stock market. So, firms weigh the penalties they face for not disclosing the incidents versus the potential reputational harm due to disclosure, and decide accordingly.
- The other important aspect is enforcement of the regulation and associated rules. How will the regulator come to know when a firm does not disclose a security breach? It can be done only through periodic cyber security audits.
- These audits should be comprehensive enough to identify such incidents that might not have been reported by the firm. Unfortunately, the regulators in most countries including India do not have such capacity to conduct security audits frequently and completely.
- If either the probability of such audits is low or the probability of finding breach incidents during such audits is low, there is incentive for the firms not to disclose security attacks.

Possible solutions

- The first is that the government empanel third party cyber security auditors for the conduct of periodical cyber security impact assessments, primarily amongst all the government departments, both at the national and State level, so that security threats and incidents can be detected proactively and incidents averted.
- The government can also mandate that periodic security audit reports be published by private firms and arrange to conduct surprise security audits towards enforcements.
- The Ministry, as part of cyber security assurance initiatives of the Government of India, to evaluate and certify IT security products and protection profiles, has set up Common Criteria Testing Laboratories and certification bodies across the country.
- These schemes can be extended towards cyber security audits and assessments as well.
- Much like IBM, which set up a large cyber security command centre in Bengaluru, other large firms can also be encouraged to set up such centres for protection of their firms' assets.
- Such measures will also pass the muster of the EU GDPR, thereby moving India closer to the set of countries that have the same level of cyber security and data protection as that of EU, for seamless cross-border data flow.

IPCC sounds another climate warning

(Source: [The Hindu](#))

Context: *On February 27, the Intergovernmental Panel on Climate Change (IPCC) issued a major report that reviewed the scientific evidence on natural, ecological, social and economic spheres, concluding that climate change has already produced irreversible losses and damage to land, coastal and marine ecosystems.*

What are the key features of the report?

- This new report, which assesses the prospects for the planet if global average surface temperature exceeds 1.5°C from the pre-industrial era, warns of severe consequences to food supply, human health, biodiversity loss and integrity of the natural environment, if carbon emissions from human activity are not sharply reduced, and governments lack the political will to review their policies.
- Using the time-frames of near-term, mid-term and long-term effects of climate change caused by average temperature exceeding 1.5°C, Working Group II proposes urgent actions that the world's leaders must take.
- The WG II report titled “Impacts, Adaptation and Vulnerability” is among three specialist publications that contribute to the overall Assessment Report 6 of the IPCC due in September 2022. One report was published last year.
- The scientific assessment is that between 3.3 and 3.6 billion people “live in contexts that are highly vulnerable to climate change.”
- This includes people living along coastlines that are threatened by rising sea levels and extreme weather events such as cyclones and floods. Clearly, India has several populous coastal cities, including Mumbai and Chennai, which play an important role in manufacturing, exports and services, and the IPCC's assessment points to the need for a policy review to help them adapt.
- The IPCC's conclusions are classified as having ‘very high confidence’ to ‘low confidence’ based on the strength of the evidence. One area where the data inspires ‘high confidence’ is human pressures on habitat.
- “Globally, and even within protected areas, unsustainable use of natural resources, habitat fragmentation, and ecosystem damage by pollutants increase ecosystem vulnerability to climate change,” it says.
- Taken as a whole, less than 15% of the world's land, 21% of the freshwater and 8% of the ocean are protected.

What are the threats?

- Food production as a fundamental determinant of human well-being and progress faces a climate threat.
- On this, the scientists contrast agricultural development contributing to food security with “unsustainable agricultural expansion, driven in part by unbalanced diets” as a stressor that increases ecosystem and human vulnerability, leading to competition for land and water.
- The prognosis for a 2°C (or worse) warmer world is severe and the report says that with higher global warming level in the mid-term (from 2041-60), food security risks due to climate change “will be more severe, leading to malnutrition and micronutrient deficiencies, concentrated in Sub-Saharan Africa, South Asia, Central and South America and Small Islands.”
- There are adaptation options, however, which should form part of inclusive policy. These include raising food output through cultivar improvements, agroforestry, community-based adaptation, farm and landscape diversification, and urban agriculture.
- Applying the principles of agroecology (a holistic approach using ecological and social concepts for sustainable agriculture), ecosystem-based management in fisheries and aquaculture, and use of natural

processes can improve food security, nutrition, health, livelihoods, biodiversity, sustainability and ecosystem services, the IPCC report argues.

- In the current situation, between 3% and 14% of all species on earth face a very high risk of extinction at even 1.5°C, with devastating losses at higher temperatures. This too will have an impact through ecological catastrophes.

Are there any policy prescriptions?

- Sounding a warning, the report says that between 2010-2020, human mortality from floods, droughts and storms was 15 times higher in highly vulnerable regions, compared to regions with very low vulnerability.
- South Asia is a hotspot, as it has among the largest absolute numbers of people displaced by extreme weather, along with South East Asia and East Asia, followed by sub-Saharan Africa.
- There are pointers for India. Heavy rainfall has increased in most of the Indian subcontinent, and Chennai, along with Chittagong, Dhaka and Mumbai, as well as the Gangetic Plain and the Delhi - Lahore corridor are seen as future migration hotspots.
- Some possible remedial measures are Heat Health Action Plans that include early warning and response systems for extreme heat. Water-borne and food-borne disease threats in populous settings can be met by improving access to potable water, reducing exposure of water and sanitation systems to flooding and extreme weather events, as well as improved early warning systems.
- The IPCC calls for mainstreaming of adaptation actions into institutional budget and policy planning, creating statutory processes, monitoring and evaluation frameworks and recovery measures during disasters.
- Moreover, introducing “behavioural incentives and economic instruments that address market failures, such as climate risk disclosure, inclusive and deliberative processes strengthen adaptation actions by public and private actors,” it says.

What options exist for climate resilient development?

- In the IPCC’s assessment, the window of opportunity to keep the rise in temperature to below 1.5°C is narrowing.
- There already exists a consensus that under existing pledges by governments who signed the Paris Agreement, this goal is impossible, and the average temperature could rise as high as 3°C, with catastrophic consequences.
- Climate Resilient Development is the answer, and it would align all pathways towards sharp cuts in greenhouse gas emissions, institution of measures to absorb much of the stock of CO₂ in the atmosphere, and raise sufficient climate finance for adaptation.
- Here, the IPCC says the global trend of urbanisation offers an immediate, critical opportunity to advance climate resilient development. Coastal cities and settlements play an especially important role.
- What cannot work, however, is energy-intensive and market-led urbanisation. Neither would weak and misaligned finance, as well as a misplaced focus on grey infrastructure, rather than ecological and social approaches.
- Wrong policies in areas such as housing could, in fact, lock in maladaptation, particularly affecting poor communities.
- Poor land use policies, siloed approaches to health, ecological and social planning also affect resilient development. The rest of the current decade is crucial in steering the world towards a low carbon pathway, the report adds.

What now

- IPCC reports form the scientific basis on which countries across the world build their policy responses to climate change.
- These reports, on their own, are not policy prescriptive: They do not tell countries or governments what to do. They are only meant to present factual situations with as much scientific evidence as is possible.



- And yet, these can be of immense help in formulating the action plans to deal with climate change. The detailed nature of this latest report, with respect to regional and sectoral impacts, presents actionable intelligence, particularly for countries that lack the resources or the capacity to make their own impact assessments.
- The fact that these findings are the product of the combined understanding of the largest group of experts on climate science lends it a credibility greater than any individual study.
- These reports also form the basis for international climate change negotiations that decide on the responses at the global level. It is these negotiations that have produced the Paris Agreement, and previously the Kyoto Protocol.
- The Paris Agreement, negotiated on the basis of the Fifth Assessment Report, seeks to keep the rise in global temperatures “well below” 2°C from pre-industrial times, while “pursuing efforts” to limit it to 1.5°C.
- The Sixth Assessment Report, however, has presented lots of evidence to suggest that pursuing a 2°C target could be disastrous, and more ambitious actions need to be taken to keep the temperature rise within 1.5°C.

GS IV

Find space for new science, its ethical dilemmas

(Source: [The Hindu](#))

Context: *In India, because of the election cycle, and because political events oscillate between their significance for an electoral democracy or their implications for an electoral autocracy, we spend little time discussing the advances of modern science and their repercussions for public life. There have been such fascinating developments in science and in technology, such as in artificial intelligence, but these have merely been reported and then have quietly faded from public view.*

For India to ponder over

- For example, there has been little discussion on the privacy implications of the new Ray-Ban/Facebook smart glasses/spectacles branded as ‘Stories’.
- These allow the wearer to video record or take photos of events and conversations without the permission or knowledge of those in the wearer’s vicinity.
- She has only to press an unobtrusive button and the recording starts. Each video recording can last 30 seconds.
- It is an elegant device that combines both high technology and high fashion. Reviewers of the glasses were unsure whether to regard the glasses as creepy or as cool. What are their implications for state interference in our privacy?
- In India, such advances of science and technology get adopted without even a boo. They soon get normalised without their ethical implications even being debated. This is because the election cycle, a low hanging fruit, dominates our attention.
- We do not have to, therefore, deal with complex ethical questions that result from advances in science and technology. And yet we need to.

Direction of medical science

- The advances in science that I would like to place for public debate come from the field of medical sciences.
- It is an area labelled ‘Xenotransplantation’, to refer to its technical name.
- In September 2021, at the NYU Langone hospital in New York, one of the most advanced research hospitals in the field of medical sciences.
 - A medical team there attached a kidney from a gene-edited animal to a person declared brain dead to see if the animal kidney was able to do the job of processing waste and producing urine. It did. The details are in the NYT, January 20, 2022.
 - The family of the person had given its permission for this experiment since the individual had donated her body for medical science.
 - In the United States there are apparently 90,000 persons waiting for a kidney transplant and this successful experiment would go some way towards meeting that need (The Guardian, October 20 2021); another estimate is that there are 1,21,678 people waiting for lifesaving organ transplants in the U.S.).
- The second case, reported on January 14, 2022, is from the University of Maryland where a team of doctors used the heart of an animal, which had genetically modified features, as a replacement heart on a patient who had run out of available options.
 - By all accounts the operation seems to have been successful. The Director of the Cardiac Xenotransplant Program of the University of Maryland, Dr. Muhammad Mohiuddin, (originally from Pakistan) had this to say about the significance of the operation.



- “This is a game changer because now we will have these organs readily available ... and the technique of genetically modifying them... We can thereby customize the heart or the organ for the patient”.
- The third case is the news report that a doctor in Germany, who has been working in the area of xenotransplants, plans to develop a farm to cultivate genetically modified organs for such transplants.
 - In his view, this will ease the pressure on the medical system.
 - In Germany alone there are 8,500 patients waiting for organ transplants
- In all three cases the animal from which the tissue or organ had been taken was the pig. It is regarded by medical science as the animal whose organs are currently best suited for humans.

Moral and social issues

- At the very least there are three ethical issues that these medical advances raise for human societies. In India these developments carry an additional sting.
- Should we discuss them or, given that they involve community sensibilities, should we pretend they are not there? Do these ethical issues pertain only to the individual or do they also concern the community? Which gets precedence? Are we obliged to discuss them, because Article 51A of the Constitution requires us “to develop scientific temper”, or can we ignore them?
- The animal rights movement has objected to these advances in medical science, of xenotransplantation, because it ignores the rights of animals.
- They are hostile to the idea of animal farms with genetically modified animals for the purpose of harvesting organs for humans requiring transplant.
- Animals, they argue, also have rights and it is our moral responsibility to support these rights. We must, therefore, not walk down the road of organ farms.
- Such thinking, they argue, stems from a philosophy of anthropocentrism which places human beings at the centre of nature and regards all other living creatures as having only value if they can be of use to humans.
- Such anthropocentric thinking, they rightly declare, has been the basis of the ecological crises of climate change. Mahatma Gandhi, they add, was opposed to the practice of vivisection.
- The animal rights perspective places on us the classic utilitarian dilemma of whether it is better to kill an animal and save a human being or to save an animal and let the human die.
- Medical science is having to work through such moral dilemmas. In India, where such questions do not even enter the portals of regulatory bodies, such as the Indian Council of Medical Research (ICMR), the time has come for us to ask such questions.
- But it is the third set of questions that is so incendiary in India. In a society where the pig is considered a dirty animal, where eating pork is considered disgusting, where those who deal with pigs are given low social status, where even asking such questions is taboo, what should the medical fraternity do?
- If global advances in medical research are moving towards a consensus on the suitability of a pig’s heart for patients suffering from terminal heart decline, what should the medical authorities recommend to the government?
- Imagine that such a patient is a Jain, or a Jew, or a Muslim or just a vegetarian. Should they be allowed to die since their belief system forbids them to have anything to do with a pig, or should they be offered a choice of life?
- Further, would not the wide adoption of xenotransplant procedures diminish the illegal and immoral market in human organs, where people, even children, are abducted so that their organs can be harvested?

Current Affairs Quiz

1) Which of the following statements is/are correct with respect to the Warsaw Pact?

1. It is a collective treaty established by the USSR and its satellite states.
2. Turkmenistan and Afghanistan are the only two Asian countries to join the pact.

Select the correct answer code:

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

Answer : a

The members of the treaty are the Soviet Union and Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, and Romania.

2) Consider the following statements:

1. Polio virus is transmitted from person-to-person spread mainly through the faecal-oral route.
2. Out of the three strains of wild poliovirus, type 1 and type 2 have been certified as globally eradicated.
3. India is the only country to move from Oral Polio Vaccine (OPV) to Injectable Polio Vaccine (IPV) method while vaccinating children.

Which of the above statements is/are correct?

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

Answer : c

Of the 3 strains of wild poliovirus, wild poliovirus type 2 was eradicated in 1999 and no case of wild poliovirus type 3 has been found since the last reported case in Nigeria in November 2012. Both strains have officially been certified as globally eradicated.

3) Which of the following statements is/are correct with respect to the Market Infrastructure Institutions (MIIs)?

1. Stock exchanges, depositories and clearing houses are all Market Infrastructure Institutions.
2. MIIs function under the aegis of Securities & Exchange Board of India (SEBI).

Select the correct answer code:

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

Answer : c

4) Consider the following statements:

1. The International Court of Justice is the only one of the six principal organs of the UN that is not located in New York City.
2. The official languages of the United Nations are the official languages of the ICJ too.
3. All members of the UN are automatically parties to the ICJ, but this does not automatically give the ICJ jurisdiction over disputes involving them.
4. The judgments of the ICJ are final and binding, and there is no provision of appeal.

Which of the above statements is/are correct?

- a. 1 and 3 only

- b. 2, 3 and 4 only
- c. 1, 3 and 4 only
- d. All of the above

Answer : c

English and French are the ICJ's official languages.

5) Consider the following statements:

- 1. A Vacuum Bomb sucks the oxygen from the surrounding, producing a blast wave for a longer duration than conventional explosives.
- 2. It is the world's most powerful non-nuclear bomb.

Which of the above statements is/are correct?

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

Answer : c

6) Which of the following statements is/are correct with respect to the Geneva Convention?

- 1. The Geneva convention comprises treaties and protocols for ethical treatment in war.
- 2. The fourth convention protects civilians, including those in occupied territory.

Select the correct answer code:

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

Answer : c

7) Consider the following statements:

- 1. Countering America's Adversaries Through Sanctions Act is a federal law of the U.S that has been used to impose sanctions against Iran and Russia only.
- 2. This act prevents trade partners of the US from entering into bilateral contracts with the countries sanctioned under the law.
- 3. Under a provision of the law, Saudi Arabia, Israel, Canada, and India are exempted from facing sanctions.

Which of the above statements is/are correct?

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

Answer : b

No blanket waivers from punitive U.S. sanctions will be issued for any one particular country under the CAATSA.

8) Which of the following statements is/are correct with respect to the Montreux Convention?

- 1. The Montreux convention regulates maritime traffic through the Black Sea, Aegean Sea, and the Mediterranean Sea.
- 2. The Bosphorus and Dardanelles straits are the only passage through which black seaports can access the Mediterranean Sea.
- 3. According to the convention, only Turkey has the control to block the Bosphorus and Dardanelles Straits.

Select the correct answer code:

- a. 1 only

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

Answer : b

The Montreux Convention regulates maritime traffic through the Black Sea.

9) Consider the following statements regarding the Stree Manoraksha Project:

1. The project is aimed at extending mental health training to 6000 One Stop Centres (OSC) functionaries across India.
2. The project is implemented by the Ministry of Women and Child Development.

Which of the above statements is/are correct?

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

Answer : c

10) Which of the following statements is/are incorrect with respect to the Internet Corporation for assigned names and numbers (ICANN)?

1. It is a non-profit organisation which controls the content posted on the internet.
2. The ICANN has the power to stop spam and can prevent unauthorised sources from posting content in the internet.
3. There cannot be two similar IP address, but there can be two similar domain names.

Codes:

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

Answer : d

ICANN doesn't control content on the Internet.

It cannot stop spam and it doesn't deal with access to the Internet.

In the same way that you cannot have two domain names the same, for the same reason it is also not possible for there to be two IP addresses the same.

11) Consider the following statements with respect to the African Union (AU):

1. The African Union is made up of all the countries in the continent of Africa.
2. The African Continental Free Trade Area (AfCFTA), aims to boost intra-African trade and all the members of the AU have ratified this agreement.

Which of the above statements is/are correct?

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

Answer : a

36 countries have ratified the AfCFTA agreement out of 55.

12) Consider the following statements.

1. The International Space Station is the only operational space laboratory as of now, orbiting the earth in a trajectory that is about 400 km above the land surface.
2. It is operated by more than 15 partner countries
3. The ISS is used for carrying out a variety of zero-gravity experiments, space exploratory studies, and technology development.

Which of the above statements is/are correct?

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

Answer: d)

13) Reverse Osmosis Systems can remove which of the following impurities?

- 1. Metal ions
- 2. Aqueous salts
- 3. Lead
- 4. Bacteria

Select the correct answer code:

- a) 1 and 2 only
- b) 2, 3 and 4 only
- c) 1, 2 and 3 only
- d) All of the above

Answer: d)

14) Maasai is a tribe of which of the following region?

- a) Turkmenistan
- b) Tanzania
- c) Antarctica
- d) South Africa

Answer: b)

15) Consider the following statements with respect to Ukraine:

- 1. Ukraine is the largest country in Europe after Russia.
- 2. India is Ukraine's largest export destination in the Asia Pacific region.

Which of the statements given above is/are correct?

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

Answer: c

16) Consider the following statements:

- 1. SWIFT facilitates funds transfer between banks and financial institutions.
- 2. SWIFT is overseen by G-10 central banks.

Which of the statements given above is/are correct?

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

Answer: b

SWIFT does not facilitate funds transfer: rather, it sends payment orders, which must be settled by correspondent accounts that the institutions have with each other.

17) R. Narayana Murthy Committee is associated with which of the following?

- a) Financial devolution between states and centre
- b) Corporate governance
- c) Appointment of judges in tribunals

d) None of the above

Answer: b

18) Consider the following statements:

1. Co-location allows brokers to operate closer to their servers upon payment of additional fees.
2. Co-location reduces latency while executing trade.

Which of the statements given above is/are correct?

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

Answer: c

19) Operation Ganga, seen in news recently is associated with-

- a) Cleaning of Ganga River
- b) Evacuation of Indians from war torn Ukraine
- c) Providing irrigation facilities to regions situated on ganga river
- d) None of the above

Answer: b

20) The State of the Union Address (SOTU) is associated with which of the following countries?

- a) France
- b) United States of America
- c) United Arab Emirates
- d) Russia

Solution: b)

The State of the Union Address (SOTU) is an annual message delivered by the president of USA.