03 JULY 2024

TOPICS COVERED

1. SCO summit in Kazakhstan   (GS Paper II: International Relations)
2. Constable-turned-spiritual preacher Suraj Pal has considerable following (GS Paper IV: Ethics) (GS Paper I: Society)
3. Text of laws changed but criminal justice administration awaits reforms: Bajpai   (GS Paper II: Justice System)
4. Indian envoy highlights energy trade ties ahead of PM Hasina's visit to China   (GS Paper II: India-Bangladesh)
5. Advanced medium combat aircraft prototype expected to be ready by 2028-29   (GS Paper III: Internal Security: Defence)
6. India needs to strengthen momentum in the key industrial sectors   (GS Paper III: Economy)
7. Digital jurisprudence in India, in an AI era   (GS Paper II: Governance)
8. Is the bad loan problem shifting to individuals fromindustries?   (GS Paper III: Banking System)
9. On improving rural mobile connectivity (GS Paper III: S&T)
10. Iran: limited democracy, unlimited theocracy   (GS Paper II: Iran)

Devoted procession: Warkaris carry the Dnyaneshwar Maharaj palanquin through the Dive ghat near Pune on Tuesday. The procession will reach Pandharpur by July 17 to celebrate Ashadi Ekadashi. EMMANUAL YOGINI

Dnyaneshwar Maharaj
- Dnyaneshwar Maharaj, also known simply as Sant Dnyaneshwar or Jnaneshwar, was a prominent saint, philosopher, poet, and yogi from Maharashtra, who lived in the 13th century.

Early Life and Background
- **Birth:** Sant Dnyaneshwar was born in 1275 CE in a village called Apegaon near Paithan in present-day Maharashtra, India.

Life and Teachings
- **Literary Works:** Sant Dnyaneshwar is best known for his magnum opus, the "Dnyaneshwari" (also spelled "Dnyaneshwari" or "Jnaneshwari"), a commentary on the Bhagavad Gita written in Marathi prose.
- **Philosophy:** He propagated the philosophy of Bhakti (devotion) and Jnana (knowledge), emphasizing the unity of all beings with the divine and the importance of understanding spiritual truths through direct experience.
- **Bhakti Movement:** Dnyaneshwar Maharaj, along with other Bhakti saints like Namdev, Eknath, Tukaram, and others, played a significant role in the Bhakti movement in Maharashtra, which sought to democratize spirituality and religious practice by emphasizing personal devotion to God over rigid ritualism.

Sant Namdev

- Namdev (1270–1350 CE) was born in Maharashtra, likely in the village of Narsi-Bamani in present-day Hingoli district.
- He is known for his devotional hymns and abhangas (devotional poetry) in Marathi, which emphasize the worship of Vithoba (a form of Lord Krishna) and the importance of bhakti (devotion) and humility.
- Namdev's compositions are included in the Guru Granth Sahib, the holy scripture of Sikhism, highlighting his influence beyond Maharashtra.

Sant Eknath

- **Birth:** Eknath (1533–1599 CE) was born in Paithan, Maharashtra.
- **Works:** He is known for his literary works such as the "Eknathi Bhagavata," a Marathi commentary on the Bhagavata Purana, and "Eknathi Bhagwat," a commentary on the Bhagavad Gita.
- Eknath was a social reformer who challenged caste discrimination and promoted egalitarianism and devotion to Lord Vitthal.

Sant Tukaram

- **Birth:** Tukaram (1608–1649 CE) was born in Dehu, near Pune, Maharashtra.
- **Literary Works:** He composed numerous abhangas (devotional songs) in Marathi, collected in the "Tukaram Gatha," which express his deep devotion to Lord Vitthal and spiritual insights.
- **Social Reformer:** Tukaram advocated for social justice, equality, and compassion, criticizing societal hypocrisy and emphasizing the importance of genuine devotion over ritualistic practices.

Restore speech in full, Rahul tells Birla; says expunction is against democracy

The Hindu Bureau
NEW DELHI

Hours after portions of his maiden speech as the Leader of the Opposition in the Lok Sabha were expunged, Rahul Gandhi wrote to Speaker Om Birla on Tuesday, saying the action went "against the very tenets of parliamentary democracy".

Demanding that his remarks be restored to the official records of the Lok Sabha, Mr. Gandhi said BJP MP Anurag Thakur's speech was full of allegations, but only one word of it was expunged. "With due respect to your good self, this selective expunction defies logic. I request that the remarks expunged from the proceedings be restored," he said.

Concerned leader: Leader of the Opposition in the Lok Sabha Rahul Gandhi made a scathing attack on the BJP on Monday. PTI

In his speech on Monday, the Congress leader made a scathing attack against the BJP, questioning the Hindu credentials of its leaders and accusing the party of dividing people.

The Speaker removed 13 parts of Mr. Gandhi's speech from the records.

Mr. Gandhi argued that while the Chair derived its power to expunge certain remarks from the proceedings of the House, the stipulation pertains only to such words as the nature of which have been specified in Rule 380 of the Rules of Procedure and Conduct of Business in the Lok Sabha.

"I am, however, shocked to note the manner in which considerable portions of my speech have been simply taken off from the proceedings under the garb of expunction," the he said.

Freedom of speech

"I am constrained to state that the portions expunged do not come under the ambit of Rule 380. What I sought to convey in the House is the ground reality and the factual position. Every member of the House who personifies the collective voice of people whom he or she represents has the freedom of speech as enshrined in Article 105 (1) of the Constitution of India," Mr. Gandhi said.

- Gandhi stated that the Chair's power to expunge remarks pertains only to words specified in Rule 380 of the Rules of Procedure and Conduct of Business in the Lok Sabha.
- He was shocked by the extensive removal of portions of his speech under the guise of expunction.
- Gandhi emphasized that the expunged portions did not fall under Rule 380 and conveyed the ground reality and factual position.
- He asserted that every member of the House has the freedom of speech as enshrined in Article 105 (1) of the Constitution of India.

Green woes: Water hyacinth cover a vast portion of the Vembanad lake at Kumarakom in Kottayam district of Kerala. This invasive species is detrimental to fish and other aquatic species, and also affects the flow of water. VISHNU PRATHAP

GS Paper III: Environment

Jaishankar to represent India in place of Modi at SCO summit in Kazakhstan

Xi, Putin, and Sharif are expected to attend; Modi's decision to skip Eurasian grouping meet could disappoint Central Asian countries as interactions with them have been cancelled twice in the past; meeting is expected to see discussions on multilateral cooperation in trade and fight against terror

GS Paper II: International Relations

Suhasini Haidar
NEW DELHI

External Affairs Minister S. Jaishankar reached Astana in Kazakhstan on Tuesday to lead the Indian delegation at the SCO Council of Heads of State in place of Prime Minister Narendra Modi on July 3 and 4, the Ministry of External Affairs has said.

Leaders of other countries in the Eurasian group, newly expanded to include Belarus this year, including Russian President Vladimir Putin, Pakistan PM Shehbaz Sharif and the Presidents of Uzbekistan, Kyrgyzstan and Tajikistan will be hosted by Kazakh President Kassym-Jomart Tokayev at the summit. Chinese President Xi Jinping landed in Astana for a state visit and bilateral meetings ahead of the SCO, while Iran's President may not be able to attend as the country is in the middle of elections. Shortly after landing, Mr. Jaishankar met Kazakh Deputy Prime Minister and Foreign Minister Murat Nurtleu. In a social

media post, he said that he had "discussed our expanding strategic partnership and India's increasing engagement with Central Asia in various formats".

Mr. Jaishankar is expected to address the grouping during the plenary session on Thursday morning.

"At the summit, the leaders are expected to review the organisation's activities over the past two decades and discuss the state and prospects of multilateral cooperation. Topical issues of regional and international importance

are also expected to be discussed at the meeting," the MEA said in a press release on Tuesday, which did not give any reason for Mr. Modi's decision not to attend the summit on July 4.

While Mr. Modi may still address the Eurasian grouping virtually, his decision to drop out of the summit in Kazakhstan will avoid awkward moments from sharing the stage with the Chinese President and Pakistan PM, given the tense ties with both countries. Mr. Modi is due to meet the Russian President

External Affairs Minister S. Jaishankar with Kazakhstan Deputy Prime Minister Murat Nurtleu in Astana on Tuesday. X/@DRSJAISHANKAR

No topic off-limits: Russia

Press Trust of India
MOSCOW

Given the "very trusting nature" of the relationship between Russian President Vladimir Putin and Prime Minister Narendra Modi, no topic is off-limits for the two leaders when they meet here soon, Kremlin spokesman Dmitry Peskov

said on Tuesday. The dates of Mr. Modi's visit to Moscow will be announced a bit later but preparations for it are already at their final stages, he said.

Describing Mr. Modi's visit as "very important", Mr. Peskov said the leaders will discuss regional and global security, trade and all other topics.

next week in Moscow for a bilateral visit.

However, the absence of Mr. Modi in Astana could disappoint the Central Asian leadership, given that his planned engagements with them have been cancelled twice in recent years, once when they were invited to India for Republic Day in 2022 (the visit was cancelled due to the COVID-19 pandemic), and when India turned the SCO Summit in July 2023 into a virtual format.

Given that the next SCO Heads of Government

meet is due to be held in Pakistan later this year, and the next SCO Summit will be hosted by China in 2025, it remains to be seen whether Mr. Modi will attend future SCO events as well.

Astana Declaration
On Thursday, the SCO Council will adopt the Astana Declaration, which is expected to focus on strengthening ties between SCO countries on economic issues, connectivity, fighting terrorism and regional developments.

During the SCO Foreign Ministers meeting in May, MEA Secretary (Economic Relations) Dammu Ravi had promoted "maximising the utilisation of the Chabahar Port" as well as using the International North-South Transport Corridor (INSTC) connecting India to Central Asia and Russia via Iran, and the India-Middle East-Europe Economic Corridor (IMEC) that has been stalled due to the Israel-Gaza conflict.

Mr. Sharif is expected to also offer Qasim port and Gwadar port for landlocked Central Asia's trade routes. India and Pakistan both became members of the SCO in 2017, and their leaders have often sparred at the high-level meetings over issues like terrorism and transit trade, including in Uzbekistan in 2022, and last year's SCO Foreign Minister's meeting in Goa.

The leaders are also expected to discuss developments in Afghanistan, given that nearly all SCO members are engaged closely with the Taliban regime in Kabul.

Jaishankar to represent India in place of Modi at SCO summit in Kazakhstan (03 July)

- Xi, Putin, and Sharif are expected to attend.
- Modi's decision to skip the Eurasian grouping meet could disappoint Central Asian countries.
- Interactions with Central Asian countries have been cancelled twice in the past.
- The meeting is expected to discuss multilateral cooperation in trade and the fight against terror.
- External Affairs Minister S. Jaishankar arrived in Astana, Kazakhstan.
- He will lead the Indian delegation at the SCO Council of Heads of State on July 3 and 4.
- The summit includes leaders such as:
  - Russian President Vladimir Putin

- o   Pakistan PM Shehbaz Sharif
  - o   Presidents of Uzbekistan, Kyrgyzstan, and Tajikistan
- Kazakh President Kassym-Jomart Tokayev will host the summit.
- Chinese President Xi Jinping arrived for a state visit and bilateral meetings.
- Iran's President may not attend due to elections in Iran.
- Jaishankar met Kazakh Deputy Prime Minister and Foreign Minister Murat Nurtleu.
- They discussed expanding the strategic partnership and India's engagement with Central Asia.
- Jaishankar is expected to address the grouping during the plenary session on Thursday morning.
- At the summit, leaders will:
  - o   Review the organisation's activities over the past two decades
  - o   Discuss multilateral cooperation
  - o   Address regional and international issues
- MEA press release did not provide a reason for Mr. Modi's absence from the summit on July 4
- Modi may address the Eurasian grouping virtually
- Modi's decision avoids sharing the stage with Chinese President and Pakistan PM due to tense relations
- Modi is scheduled to meet the Russian President in Moscow next week
- Modi's absence could disappoint Central Asian leaders due to:
  - o   Canceled engagements in recent years
  - o   Republic Day 2022 invitation canceled due to COVID-19 pandemic
  - o   SCO Summit in July 2023 turned into a virtual format
- Future SCO events:
  - o   Next SCO Heads of Government meet in Pakistan later this year
  - o   Next SCO Summit to be hosted by China in 2025
  - o   Uncertainty about Modi's attendance at future SCO events

Astana Declaration

- The SCO Council will adopt the Astana Declaration, focusing on economic ties, connectivity, terrorism, and regional developments.
- MEA Secretary Dammu Ravi promoted the Chabahar Port, INSTC, and IMEC during the SCO Foreign Ministers meeting in May.
- Mr. Sharif is expected to offer Qasim and Gwadar ports for Central Asia's trade routes.
- India and Pakistan, both SCO members since 2017, often clash over issues like terrorism and transit trade at high-level meetings.
- Leaders will discuss developments in Afghanistan, with most SCO members engaged with the Taliban regime.

The Shanghai Cooperation Organisation (SCO) summit is a yearly meeting of the heads of member states of the SCO.

Establishment and Background

- **Origins:** Established in 2001, the SCO evolved from the Shanghai Five, formed in 1996.
- **Founding Members:** China, Kazakhstan, Kyrgyzstan, Russia, and Tajikistan initially formed the Shanghai Five.
- **Expansion:** In 2001, Uzbekistan joined, expanding the organization to the SCO.
- **Initial Expansion:** India and Pakistan joined in June 2017, expanding the SCO to eight member states.
- **Recent Addition:** Iran became a member in July 2023.
- **Recent Members:** China, India, Iran, Kazakhstan, Kyrgyzstan, Pakistan, Russia, Tajikistan, Uzbekistan.
- **Headquarters:** Beijing, China

24th SCO Council of Heads of State Meeting (SCO Summit)

- **Date and Location:** July 4, 2024, in Astana, Kazakhstan.
- **Presidency:** Hosted by Kazakhstan.

Indian Delegation and Leadership

- **Leader:** External Affairs Minister, Dr. S. Jaishankar, will lead the Indian delegation.

India's Priorities in SCO (SECURE Vision)

- **Vision:** Prime Minister's vision of a 'SECURE' SCO.
- **Meaning of SECURE:**
    - **Security:** Enhancing regional security cooperation.
    - **Economic Cooperation:** Promoting economic ties and collaboration.
    - **Connectivity:** Improving regional connectivity infrastructure.
    - **Unity:** Strengthening unity among SCO member states.
    - **Respect for Sovereignty and Territorial Integrity:** Upholding principles of sovereignty and territorial integrity.
    - **Environmental Protection:** Commitment to environmental sustainability.

Organizational Structure

- **Heads of State Council (HSC):**
    - **Role:** Supreme decision-making body.
    - **Meetings:** Convenes annually to set policies and strategic directions.
- **Secretary-General:**
    - **Current Official:** Zhang Ming.
- **Regional Antiterrorist Structure (RATS):**
    - **Purpose:** Coordinates efforts among member states to combat terrorism.
    - **Operational:** Functions within the SCO framework to enhance regional security.

Text of laws changed but criminal justice administration awaits reforms: Bajpai

GS Paper II: Justice System

Vijaita Singh
NEW DELHI

The text of the three criminal laws may have been changed but the real test lies with reforms of the criminal justice administration, and expecting the news laws to function from the first day is not feasible, says G.S. Bajpai, who headed the first committee set up by the Union Home Ministry in 2020 to examine the laws.

Mr. Bajpai told *The Hindu* that the lower judiciary was stressed and there was huge pendency of cases, and it was unrealistic to expect that the new laws would function immediately.

"The Indian Penal Code evolved in more than 100 years till it was scrapped in 2023. Expecting these laws to kick off from first day is not feasible, and the effects of their implementation will be known in six to 12

G.S. Bajpai

months," Mr. Bajpai said, adding that 70% text of the old laws had been retained in the new laws.

According to the National Judicial Data Grid, as on Tuesday, there were 3.4 crore cases pending in district courts across India, out of which nearly 1 crore cases were pending for more than a year.

From July 1, the Bharatiya Nyaya Sanhita (BNS) replaced the Indian Penal Code, 1860; the Bharatiya Sakshya (BS) replaced the Indian Evidence Act, 1872; and the Bharatiya Nagarik

Suraksha Sanhita (BNSS) replaced the Code of Criminal Procedure, 1898.

Implementation panel
Mr. Bajpai said he had written to the Law Ministry to constitute a National Implementation Committee to enable sharing of information and challenges pertaining to the new laws as they were implemented.

"A dashboard can be created where all stakeholders can upload the challenges and issues being faced during implementation of the laws," he said.

The BNSS mandates audio-video recording of search and seizure in each criminal case and forensic examination in all crimes punishable by more than seven years. All such records will have to be submitted before the court in electronic format "without delay". Under the BNSS, the courts will have to frame charges within 60

days of the first hearing and deliver the judgment within 30-45 days from the date of completion of arguments.

"Theoretically, the police will have to record everything. What will be the total range of issues while recording will be known in a few days," he said.

Mr. Bajpai was the convener of the Committee for Reforms in Criminal Laws set up by the Ministry.

"The reforms have been made to the criminal laws but not to the criminal justice administration. The operational aspects rest with the criminal justice system," Mr. Bajpai said.

"The human resources available with judiciary compared to the number of cases that are pending are too low. Now the cases will be tried under the new laws and the judiciary does not have the futuristic planning to cope with the pressure," he added.

Text of laws changed but criminal justice administration awaits reforms: Bajpai

- The text of the three criminal laws has changed, but real reforms in criminal justice administration are needed.
- G.S. Bajpai, who led the first committee to examine these laws in 2020, stated that expecting the new laws to function from day one is unrealistic.
- Mr. Bajpai highlighted that the lower judiciary is stressed with a huge backlog of cases.
- He noted that the Indian Penal Code evolved over more than 100 years, and it is unrealistic to expect immediate functionality from the new laws.
- According to Mr. Bajpai, 70% of the old laws' text has been retained in the new laws.

- The National Judicial Data Grid reports 3.4 crore pending cases in district courts across India, with nearly 1 crore cases pending for over a year.
- From July 1, the Bharatiya Nyaya Sanhita replaced the Indian Penal Code, 1860; the Bharatiya Sakshya replaced the Indian Evidence Act, 1872; and the Bharatiya Nagarik Suraksha Sanhita replaced the Code of Criminal Procedure, 1898.
- Mr. Bajpai recommended forming a National Implementation Committee to share information and address challenges during the new laws' implementation.
- He suggested creating a dashboard for stakeholders to upload challenges and issues faced during the implementation.
- The BNSS mandates audio-video recording of search and seizure in each criminal case and forensic examination in all crimes punishable by more than seven years.
- All such records must be submitted to the court electronically without delay.
- The BNSS requires courts to frame charges within 60 days of the first hearing and deliver judgment within 30-45 days from the date of completion of arguments.
- Mr. Bajpai emphasized that the police will need to record everything, and the full range of issues will become clear over time.
- He mentioned that reforms have been made to the criminal laws but not to the criminal justice administration, which handles the operational aspects.
- The judiciary's available human resources compared to the number of pending cases are too low.
- The judiciary does not have the futuristic planning to cope with the pressure of trying cases under the new laws.

Indian envoy highlights energy trade ties ahead of PM Hasina's visit to China

Kall GS Paper II:
NEW India-Bangladesh

Days ahead of Bangladesh Prime Minister Sheikh Hasina's upcoming visit to China, India's envoy to Bangladesh Pranay Verma has identified "energy connectivity" as a key pillar of the "transformative changes" that are shaping the India-Bangladesh relationship.

Speaking at an event in Dhaka on Tuesday, Mr. Verma said the regional electricity trade between India, Bangladesh, Nepal, and Bhutan would mark a "paradigm shift" in the quest for energy security in South Asia.

The High Commissioner described energy connectivity as a "hallmark of transformative changes". Cross-border power "transmission lines are not

Indian envoy Pranay Verma greets Bangladesh PM Sheikh Hasina in January.

only bringing power from India to Bangladesh, but also facilitating power transmission from Nepal to Bangladesh through India," the state-owned news outlet *BNS* quoted him as saying.

"In his address, the High Commissioner emphasised that the robustness and integrated nature of the Indian grid, together with sophisticated platforms for power trading and exchanges existing in India, offer great opportunity to its neighbours to

join each other through the Indian grid for seamless cross-border electricity trade," the BNS has reported.

FTA talks

Mr. Verma was speaking at a regional workshop on "Transforming Cross Border Electricity Trade and Regional Electricity Market for an Energy Secure South Asia", jointly organised by the Research and Information System for Developing Countries and the USAID's South Asia Regional Energy Partnership (SAREP).

The conference, being held days after Prime Minister Sheikh Hasina returned from her trip to India, took up the agreements reached during the visit and presented them as markers for the evolution of bilateral ties in the coming months.

Indian envoy highlights energy trade ties ahead of PM Hasina's visit to China

- Ahead of Bangladesh Prime Minister Sheikh Hasina's visit to China, India's envoy to Bangladesh, Pranay Verma, identified "energy connectivity" as key to the transformative changes in the India-Bangladesh relationship.
- Speaking in Dhaka, Mr. Verma highlighted the regional electricity trade between India, Bangladesh, Nepal, and Bhutan as a paradigm shift for energy security in South Asia.
- He described energy connectivity as a hallmark of transformative changes.
- Cross-border power transmission lines are not only bringing power from India to Bangladesh but also facilitating power transmission from Nepal to Bangladesh through India.

- The robustness and integrated nature of the Indian grid, along with sophisticated platforms for power trading and exchanges, offer great opportunities for neighboring countries to join each other through the Indian grid for seamless cross-border electricity trade.
- Mr. Verma was speaking at a regional workshop on cross-border electricity trade and the regional electricity market for an energy-secure South Asia, organized by the Research and Information System for Developing Countries and USAID's South Asia Regional Energy Partnership (SAREP).
- The conference, held shortly after Prime Minister Sheikh Hasina's visit to India, discussed the agreements reached during her trip and presented them as markers for the evolution of bilateral ties in the coming months.

Two vaccines that brought us to the brink of eradicating polio

While the poliovirus is today restricted to rural pockets of Afghanistan and Pakistan, it is beginning to reappear in big cities in these two countries thanks to vaccine hesitancy. The WHO's Global Polio Eradication Initiative is thus set to miss its deadline of eradicating polio by the end of 2024

Arun Panchapakesan

In 1948, microbiologists John F. Enders, Thomas Weller, and Frederick Robbins were trying to find a method to grow different viruses in cell cultures. In a routine experiment involving human muscle and skin cells, they decided to test one more virus along with the ones they were already testing, since a vial containing that virus was in their freezer. To their surprise, the virus proliferated and grew well with their method. Their work eventually solved one of the most important scientific problems of the time.

They had just managed to find a way to grow the poliovirus in non-nerve cells.

A major roadblock

In the mid-20th century, researchers widely believed the poliovirus could only be grown in cultures of nerve cells. This misconception was propagated by their inability to infect rhesus macaques by the oral route, and only by directly injecting the virus into the nervous system. At the time, they didn't know the problem was with the poliovirus strains they were using.

The poliovirus has only one natural host – humans – and many of the early strains of the virus were isolated from humans and wouldn't infect non-human primates. Since scientists kept passing the virus through the brain tissues of macaques, it adapted to that mode of infection.

The inability to culture polio in non-nerve cells was a major roadblock to developing a polio vaccine. But thanks to Enders and his team, the poliovirus could now be mass-produced for vaccine research.

Eradication target missed

Polio eradication is one of the top priorities of the World Health Organisation (WHO). Since Africa was declared polio-free in August 2020, the wild poliovirus has been restricted to rural pockets of Afghanistan and Pakistan. But according to a recent report in *Science*, the virus is beginning to reappear in big cities in these two countries.

This reemergence is a result of vaccine hesitancy due to misinformation, conflict, poverty, and limited access to these isolated regions. The WHO's Global Polio Eradication Initiative is thus set to miss its deadline of eradicating polio by the end of 2024.

The initiative's failure in Afghanistan and Pakistan casts a long shadow on an otherwise remarkable achievement: polio having been eradicated everywhere else. This feat was driven by two vaccines, both

A health worker (right) administers polio vaccine drops to a child during a vaccination campaign in Karachi. AFP

invented within a year of each other. They are administered differently, provide distinct levels of protection, contain different components, and target different compartments of the immune system. Yet they both played equally invaluable roles in the global fight against polio.

The systemic and the mucosal

In late 1949, Enders received a letter requesting the starting material and the procedure his team had perfected to grow the poliovirus in culture. At the time, Enders & Co. were discussing their own future work. While his younger colleagues, Weller and Robbins, wanted to use the method to foray into vaccine research, Enders said such a job was ill-suited for basic science researchers like themselves. They handed over the sample and the procedure to the letter's author, the director of the Virus Research Laboratory at the University of Pittsburgh, Jonas Salk.

Salk made the first successful vaccine for polio. He grew the virus using the method Enders and his team had developed, inactivated it by treating it with formaldehyde, and injected it into his test subjects. The fragments of the inactivated virus were able to induce immunity in their bodies. Importantly, since the vaccine was introduced into the muscle, it generated systemic immunity.

The immune system has two main parts: the systemic and the mucosal. The systemic component includes the blood, the brain, and all other organ systems. The mucosal component includes the

> John F. Enders, Thomas Weller, and Frederick Robbins solved one of the most important scientific problems of their time. They managed to find a way to grow the poliovirus in non-nerve cells

inner linings of the digestive and respiratory systems, the urogenital tract, and the eyes. These regions are lined with mucous membranes that provide an additional layer of protection, as they frequently come into contact with the external environment.

Striking at ground zero

Soon after Salk made his inactivated polio vaccine (IPV), Albert Sabin developed another vaccine that contained live polio strains weakened by growing them serially in macaque cells, making them unfit for human infection. Since Sabin's vaccine contained live virus particles, it had to rely on its natural mode of infection and was therefore administered orally. This was the oral polio vaccine (OPV).

Since the OPV went into the stomach, it induced a powerful protective mucosal immune response right where the virus would have to begin its infection.

The OPV had multiple advantages over the IPV. First, the vaccine induced a protective response at the viral entry site – the gut – allowing it to provide a much

greater degree of protection relative to the IPV. Second, the OPV was administered orally and didn't require syringes or trained personnel for its administration.

A one-two punch

But there was a catch. Occasionally, the weakened virus in the OPV would revert, and do the very job it was designed to prevent: cause polio. On the other hand, the IPV, while being a less potent vaccine, contained inactivated virus particles and carried no risk of causing vaccine-induced polio.

The world has used both vaccines in the fight against polio. While some countries, such as Norway, Sweden, Finland, and Iceland, relied exclusively on the IPV, most countries have used a combination of the two. The latter countries prefer the OPV for its superior protection and ease of administration. When the number of natural polio cases drops to zero, they switch to IPV for its enhanced safety.

Despite the many differences between the Salk and Sabin vaccines, they share one crucial feature that armed the WHO in its fight against polio: both Jonas Salk and Albert Sabin chose not to patent their vaccines. When asked who owned the patent on his vaccine, Salk famously replied: "Well, the people, I would say. There is no patent. Could you patent the sun?"

(Arun Panchapakesan is an assistant professor at the Y.R. Gaithonde Centre for AIDS Research and Education, Chennai.)

THE GIST

▼
The inability to culture polio in non-nerve cells was a major roadblock to developing a polio vaccine. Enders and his team made it possible for the poliovirus to be mass-produced for vaccine research

▼
Salk made the first successful vaccine using Enders' method to grow the virus. He inactivated the virus by treating it with formaldehyde, and injected it into his test subjects. The fragments of the inactivated virus were able to induce immunity

▼
Albert Sabin developed the OPV that contained live polio strains weakened by growing them in macaque cells. Since Sabin's vaccine contained live virus particles, it had to rely on its natural mode of infection and was therefore administered orally

- **1948 Experiment:** Microbiologists John F. Enders, Thomas Weller, and Frederick Robbins conducted an experiment to grow viruses in cell cultures.

- **Serendipitous Discovery:** They tested a virus from their freezer along with others and found it proliferated well in human muscle and skin cells.
- **Significance:** This experiment led to the discovery that poliovirus could be grown in non-nerve cells, solving a major scientific problem.

Prior Belief and Roadblock

- **Mid-20th Century Belief:** Researchers believed poliovirus could only grow in nerve cell cultures.
- **Misconception Origin:** This belief was due to unsuccessful attempts to infect rhesus macaques orally, which only worked when injected directly into the nervous system.
- **Natural Host:** Poliovirus naturally infects humans, and early virus strains failed to infect non-human primates.
- **Virus Adaptation:** The virus adapted to brain tissue infection in macaques due to repeated passages through their brain tissues.
- **Vaccine Development Issue:** The inability to culture poliovirus in non-nerve cells hindered vaccine development.

Polio Vaccine Development

- **Enders' Contribution:** The team's discovery allowed mass production of poliovirus for vaccine research.

Polio Eradication Efforts

- **WHO Priority:** Polio eradication is a top priority for the World Health Organisation (WHO).
- **Current Status:** Africa was declared polio-free in August 2020; the virus is now confined to rural Afghanistan and Pakistan.
- **Recent Developments:** The virus is reappearing in major cities in these two countries due to vaccine hesitancy, conflict, poverty, and limited access.

Global Polio Eradication Initiative

- **Missed Deadline:** WHO's Global Polio Eradication Initiative is likely to miss its goal of eradicating polio by the end of 2024.
- **Challenges:** The initiative faces challenges in Afghanistan and Pakistan.
- **Overall Success:** Despite setbacks, the initiative has eradicated polio globally except in Afghanistan and Pakistan.

Vaccines' Role

- **Twin Vaccines:** Two vaccines, invented within a year of each other, were pivotal in the fight against polio.

- **Differences and Impact:** The vaccines differ in administration, protection levels, components, and immune system targets, but both were crucial to the global effort against polio.

The systemic and the mucosal

- In late 1949, Enders received a letter asking for the starting material and procedure to grow the poliovirus in culture.
- Enders' colleagues wanted to use the method for vaccine research, but Enders believed it wasn't suitable for basic science researchers.
- They provided the sample and procedure to Jonas Salk, director of the Virus Research Laboratory at the University of Pittsburgh.
- Salk developed the first successful polio vaccine using Enders' method, inactivated the virus with formaldehyde, and injected it into test subjects.
- This vaccine induced systemic immunity, which involves the blood, brain, and other organ systems.
- The mucosal component of the immune system includes the inner linings of the digestive, respiratory, urogenital tracts, and the eyes, providing additional protection.
- Albert Sabin developed another vaccine containing live, weakened polio strains, which was administered orally as the oral polio vaccine (OPV).
- The OPV induced a strong mucosal immune response in the stomach, where the virus begins its infection.

Striking at ground zero

- OPV provided greater protection and ease of administration compared to the inactivated polio vaccine (IPV), which required syringes and trained personnel.
- However, the weakened virus in OPV occasionally reverted and caused polio, while the IPV, being less potent, carried no risk of vaccine-induced polio.
- Both vaccines were used globally; some countries relied exclusively on IPV, while others used a combination, switching to IPV when natural polio cases dropped to zero.
- Jonas Salk and Albert Sabin did not patent their vaccines, ensuring they were accessible to all. Salk famously said, "Could you patent the sun?"

How we grow taller at night

Q: Are we measurably taller in the morning than when we go to bed?

A1: We are all indeed taller in the morning. There are two components to this. In a growing child, the growth hormone is secreted in pulses overnight. This acts through several intermediary steps to cause lengthening of the bones at the end-plates (epiphyses). Accurate measurements of the forearm or lower leg using specialised apparatus or X-rays can record this night-time growth.

The most marked effect, however, which occurs even after growth has ceased, is caused by postural compression of the spine under the effect of gravity. This was recognised in mediaeval French folklore: it was common practice to apply for recruitment to the army first thing in the morning in order to appear taller. In 1724, Reverend Joseph Wasse from Aynho in Northamptonshire, U.K., measured a loss of up to 15 mm through the day. This was more marked in young and active labourers.

A2: Another factor concerns the inherent curvatures of the spinal column. This has a convexity backwards in the thoracic or chest region, called a kyphosis, and a concavity in the lumbar region or base of the back called a lordosis. These

A pencil illustration of the vertebral column and the spinal cord. H.G. WETSELAAR, UNIVERSITAIRE BIBLIOTHEKEN LEIDEN

curves vary with body weight and position. As a result, the spinal column tends to press downwards when in an upright position, altering these curvatures, and hence shortening the spinal length. When lying down, the reverse happens and the column lengthens again.

The combination of disc and curvature factors causes height change and is about 16 mm during the course of the day in the average adult.

For feedback and suggestions for 'Science', please write to **science@thehindu.co.in** with the subject 'Daily page'

- We are all taller in the morning.
- In growing children, growth hormone is secreted in pulses overnight, causing lengthening of the bones at the end-plates (epiphyses).
- Accurate measurements of the forearm or lower leg using specialized apparatus or X-rays can record this night-time growth.

- The most significant effect, even after growth has ceased, is postural compression of the spine under gravity.
- Medieval French folklore recognized this, as people would apply for army recruitment in the morning to appear taller.
- In 1724, Reverend Joseph Wasse measured a loss of up to 15 mm in height through the day, more marked in young and active laborers.
- The spinal column has inherent curvatures: a convexity backward in the thoracic region (kyphosis) and a concavity in the lumbar region (lordosis).
- These curves vary with body weight and position, causing the spinal column to press downwards when upright, shortening the spinal length.
- When lying down, the spinal column lengthens again.
- The combination of disc compression and curvature changes causes height to vary by about 16 mm during the day in the average adult.

Great expectations, liberalism in dark times (03 July)

- Politics and philosophy aim to find unity in diversity, merging contradictions in a multi-racial society.
- Achieving widespread concord represents an ideal state based on coexistence and welfare for all.
- Democracy's global history reveals flaws in liberalism, which faces various threats.
- Liberalism, which checks power and protects fundamental rights, is under attack.
- The key issue in times of sectarianism is determining who has the 'rights to have rights,' highlighting civil discrimination, racist politics, and xenophobic bigotry.
- The rise of right-wing nationalism and the global refugee and migrant crises expose societal and ideological fissures.

Electoral outcomes

- Liberalism is facing an existential crisis with a shift towards the right in the European Parliament.
- Public opinion favors climate skepticism, anti-migration sentiment, and divisiveness due to nationalism.
- In India's recent general election, the electorate rejected authoritarianism and sullied politics.
- The election outcome reinforced democracy, checked oppression and communalism, and addressed Muslim community fears.
- There is hope for a robust Opposition and a government open to listening and debating.

- Democratic institutions are expected to continue defending fundamental rights and promoting a diverse civil society.
- Understanding the distinction between private religious faith and public politicized life is crucial for societal harmony.
- A conversation between conservatives and the left is needed, focusing on rationality, justice, and addressing marginalized groups' issues.
- Human rights crises arise from exclusion and forced assimilation by nation-states.
- The Indian electorate rejected a regime fostering hatred and ethnic violence.
- There is a hopeful emergence of a collective opposition to hold the government accountable.

Verdict and the advent of hope

- Democracy is fading as nations indulge in deception and deceit, using manipulative rhetoric.
- Right-wing governments, drunk on power, ignore rationality and attack those who speak truth to power.
- Political speeches should display dignity and reason, not promote oppression through media and state apparatus.
- There is hope for the ruling party to adopt a tempered liberalism.
- The Opposition is expected to champion humility, pluralism, and modesty.
- Spinoza contrasts the natural order, where individuals act for their own advantage, with the civil order, where individuals are responsible to the state.
- In a civil setup, law and morality prevail over personal whims and lawlessness.
- Spinoza highlights the necessity of organized societies governed by accepted beliefs and rationality.
- Living in a social system requires adherence to a moral order, preventing the state from becoming tyrannical.
- The rise of anti-liberal tendencies and the neglect of political wisdom by current leadership threaten democratic institutions globally.
- India oscillates between hope and scepticism after its general election results.
- This moment will influence its democracy and provoke thoughts on the lack of political wisdom and dignified leadership globally.
- Political cooperation and engagement with opponents are essential.
- There is concern about the return of McCarthyism and the depressive state of the world.
- Despite challenges, democratic forces remain present and can counter harmful political trends.
- Indian politics must demonstrate that democracy thrives, especially when human dignity is at stake.
- The future is about personal liberty, democratic self-rule, and moral significance.

Digital jurisprudence in India, in an AI era

GS Paper II: Governance

Even though Generative AI (GAI) stands as a transformative force, wielding power to revolutionise society in ground-breaking ways, existing legal frameworks and judicial precedents that have been designed for a pre-AI world may struggle to effectively govern this rapidly-evolving technology.

Safe harbour and liability fixation

One of the most persistent and contentious issues in Internet governance has been the fixing of liability on "intermediaries" for content hosted by them. The landmark Shreya Singhal judgment addressed this by upholding Section 79 of the IT Act which grants intermediaries 'safe harbour' protection against hosting content, contingent upon meeting the due diligence requirements outlined in Section 3(1)(b) of the Information Technology (Intermediaries Guidelines) Rules. However, its application to Generative AI tools remains challenging.

There are contrasting views on the role of GAI tools. Some argue that they should be considered intermediaries since they are used almost like a search engine even though they do not host links to third-party websites. Others argue that they are mere "conduits" for user prompts, where altering the prompt leads to changes in output – essentially making the generated content akin to third-party speech, and, therefore, attracting lesser liability for the content generated.

In *Christian Louboutin Sas vs Nakul Bajaj and Ors* (2018), the Delhi High Court held that safe harbour protection applies solely to "passive" intermediaries, referring to entities functioning as mere conduits or passive transmitters of information. However, in the context of Large Language Models (LLMs), making a distinction between user-generated and platform-generated content is increasingly challenging. Additionally, liability in the case of AI chatbots arises once the information is reposted on other platforms by the user; mere response to a user prompt is not considered dissemination.

Generative AI outputs have already led to legal conflicts in various jurisdictions. In June 2023, a

Amar Patnaik

a former Member of Parliament (Rajya Sabha) from Odisha and now an advocate by profession. He was a former CAG bureaucrat

This rapidly-evolving technology does pose a challenge to existing legal frameworks and judicial precedents that have been designed for a pre-AI world

radio host in the United States filed a lawsuit against Open AI, alleging that Chat GPT had defamed him. The ambiguity in classifying GAI tools, whether as intermediaries, conduits, or active creators, will complicate the ability of courts to assign liability, particularly in user reposts.

The copyright conundrum

Section 16 of Indian Copyright Act 1957 specifically provides that "no person" shall be entitled to protection of copyright except by the provisions of the Act. As in India, reluctance persists regarding the provisions of copyright protection to works generated by AI globally.

The critical questions are: should existing copyright provisions be revised to accommodate AI? If AI-generated works gain protection, would co-authorship with a human be mandatory? Should recognition extend to the user, the programme itself, and by extension, the programmer, or both? The 161st Parliamentary Standing Committee Report found that the Copyright Act of 1957 is "not well equipped to facilitate authorship and ownership by Artificial Intelligence".

Under current Indian law, a copyright owner can take legal action against anyone who infringes on his/her work with remedies such as injunctions and damages. However, the question of who is responsible for copyright infringement by AI tools remains unclear. As previously argued, classifying GAI tools, whether as intermediaries, conduits, or active creators, will complicate the courts' ability to assign liability. ChatGPT's 'Terms of Use' attempt to shift liability to the user for any illegal output. But the enforceability of such terms in India is uncertain.

The landmark K.S. Puttaswamy judgment (2017) by the Supreme Court of India established a strong foundation for privacy jurisprudence in the country, leading to the enactment of the Digital Personal Data Protection Act, 2023 (DPDP). While traditional data aggregators or consent managers raise privacy concerns during the collection and distribution of personal

information, Generative AI introduces a new layer of complexity.

The DPDP Act introduces the "right to erasure" as well as "right to be forgotten". However, once a GAI model is trained on a dataset, it cannot truly "unlearn" the information it has already absorbed. This raises a critical question. How can individuals exercise control over their personal information when it is woven into the very fabric of a powerful AI model?

Steps to pursue

First, learning by doing. Consider granting GAI platforms temporary immunity from liability following a sandbox approach. This approach allows responsible development while gathering data to identify legal issues that could inform future laws and regulations.

Second, data rights and responsibilities. The process of data acquisition for GAI training requires an overhaul. Developers must prioritise legal compliance by ensuring proper licensing and compensation for the intellectual property used in training models. Solutions could include revenue-sharing or licensing agreements with data owners.

Third, licensing challenges. Licensing data for GAI is complex as web-data lacks a centralised licensing body similar to copyright societies in the music industry. A potential solution is the creation of centralised platforms, akin to stock photo websites such as Getty Images, which simplify licensing, streamline access to necessary data for developers and ensure data integrity against historical bias and discrimination.

The jurisprudence around Generative AI (GAI) is hazy and yet to be evolved. It demands a comprehensive re-evaluation of existing digital jurisprudence. A holistic, government-wide approach and judicious interpretations by the constitutional courts are essential to maximise the benefits of this powerful technology, but safeguarding individual rights and protecting them against unwelcome harm all the while.

The views expressed are personal

Digital jurisprudence in India, in an AI era (03 July)

- Generative AI has the potential to revolutionize society.
- Existing legal frameworks and judicial precedents may struggle to effectively govern this rapidly-evolving technology.

Safe harbour and liability fixation

- Liability of "intermediaries" for hosted content is a contentious issue in Internet governance.
- The Shreya Singhal judgment upheld Section 79 of the IT Act, granting intermediaries 'safe harbour' protection if they meet due diligence requirements.
- Applying this to Generative AI (GAI) tools is challenging due to differing views on their role.

- Some view GAI tools as intermediaries, while others see them as conduits for user prompts.
- The Delhi High Court's 2018 decision limits safe harbour protection to "passive" intermediaries.
- Distinguishing between user-generated and platform-generated content in Large Language Models (LLMs) is difficult.
- Liability for AI chatbot outputs arises when reposted by users, not for mere responses to prompts.
- GAI outputs have led to legal conflicts, such as a June 2023 defamation lawsuit in the US against OpenAI.
- Ambiguity in classifying GAI tools complicates court decisions on liability, especially in user reposts.

The copyright conundrum

- Section 16 of the Indian Copyright Act 1957 states that copyright protection is only provided as per the Act.
- There is global reluctance to grant copyright protection to AI-generated works.
- Key questions include whether copyright laws should be revised for AI, if co-authorship with humans is needed, and who should be recognized as the copyright owner (user, program, or programmer).
- The 161st Parliamentary Standing Committee Report states the Copyright Act of 1957 is not equipped for AI authorship and ownership.
- Under current Indian law, copyright owners can take legal action for infringement, but AI-related infringement responsibility is unclear.
- Classifying GAI tools complicates liability assignment in courts.
- ChatGPT's 'Terms of Use' shift liability to the user for illegal output, but enforceability in India is uncertain.
- **The K.S. Puttaswamy judgment (2017) established privacy rights in India**.
- It led to the enactment of the Digital Personal Data Protection Act, 2023 (DPDP).
- Traditional data aggregators and consent managers already raise privacy concerns.
- Generative AI introduces new complexities in privacy due to its data handling capabilities.
- The DPDP Act includes rights such as "right to erasure" and "right to be forgotten."
- However, AI models trained on data cannot easily forget or erase information.
- This raises challenges in how individuals can control their personal information within AI systems.

Steps to pursue

- **Learning by doing**: Allow GAI platforms to operate in a sandbox environment initially, granting temporary immunity from legal liability to encourage responsible development and identify potential legal issues.
- **Data rights and responsibilities**: Ensure GAI developers acquire data legally by implementing proper licensing and compensation mechanisms for intellectual property used in training models. Consider revenue-sharing agreements with data owners.
- **Licensing challenges**: Address complexities in licensing data for GAI, similar to issues faced in the music industry. Propose central platforms like Getty Images for data licensing to streamline access and ensure fairness, preventing historical biases.
- **Jurisprudence around GAI**: Recognize the current legal uncertainties surrounding GAI and advocate for a comprehensive review of existing laws. Aim for a government-wide approach and judicial interpretations that balance leveraging GAI benefits with protecting individual rights and privacy.

Mixed signals (03 July)

India needs to strengthen momentum in the key industrial sectors

Context: Output data for May from India's eight core infrastructure sectors was released.

Impact of Heatwave:

- Increased power consumption due to widespread use of fans and cooling systems.

- Only coal and electricity generation saw double-digit growth (10.2% and 12.8% respectively).

Sector-specific Performance:

- **Positive Growth**: Coal and electricity.

- **Negative Growth**: Crude oil, fertilizers, and cement production declined.

- **Decelerated Growth**: Natural gas, refinery products, and steel sectors.

Regional Impact: Northern India was notably affected by the heatwave.

- Construction sites had afternoon breaks, affecting productivity.

- Peak power demand in Northern regions consistently high, exceeding 75 gigawatts.

Industry-specific Insights:

- Cement and steel demand weakened due to reduced construction activity.

- Fertilizer output contracted for the fifth consecutive month, indicating ongoing weakness in rural agriculture.

Optimistic Note:

- A slight improvement in the farm input index in May offers a ray of hope amidst overall sectoral challenges.

- Official data for India's core sector and Index of Industrial Production (IIP) come with a significant lag of more than a month.
- The HSBC India Manufacturing Purchasing Managers' Index (PMI) for June indicated a rebound in factory activity from May's low.
- June's PMI (Purchasing Manager's Index) reading was 58.3, higher than May's 57.5, and above its long-run average, showing robust manufacturing activity.
- Manufacturers increased output, purchases, and hiring at the fastest pace in over 19 years.
- However, there was a notable rise in staff expenses, material costs, and transportation costs, leading to increased selling charges by manufacturers.
- Despite strong current activity, there are concerns about future output as confidence among survey respondents dipped to a three-month low.
- Policymakers may consider adjustments in the upcoming Union Budget to support and enhance momentum in critical industrial sectors.

The Index of Industrial Production (IIP)

It is an economic indicator that measures the growth rates in different sectors of the economy, primarily the **manufacturing, mining, and electricity sectors**.

The Index of Industrial Production (IIP) is a composite indicator that measures changes in the volume of production in the industrial sector of an economy over a specified period of time.

Components
1. **Manufacturing Sector:** Includes the production of various goods such as textiles, chemicals, machinery, etc.
2. **Mining Sector:** Covers the extraction and processing of minerals, ores, and natural resources.
3. **Electricity Sector:** Measures the generation, transmission, and distribution of electricity.

Calculation Methodology
- **Weighted Index:** Each sector (manufacturing, mining, electricity) is assigned a weight based on its contribution to the overall industrial output.
- **Base Year:** The IIP is usually calculated with reference to a base year, which serves as a benchmark against which current production levels are compared.
- **Monthly Data:** It is released monthly by government agencies and reflects changes in production levels compared to the base year.

- The Manufacturing Purchasing Managers' Index (PMI) is an economic indicator that provides insights into the performance of the manufacturing sector within an economy.
- PMI data is compiled by surveying purchasing managers at manufacturing firms to gauge their perceptions of business conditions and activity levels in the sector.
- The PMI is based on various key components such as new orders, production levels, employment, supplier deliveries, and inventories.
- In India, the Manufacturing Purchasing Managers' Index (PMI) data is provided by IHS Markit, an international research firm specializing in economic analysis and data.

Open court (03 July)

For the first time in two decades, the Big Four are not among favourites

- Wimbledon 2024 marks a generational transition in world tennis.
- Roger Federer has retired, and Rafael Nadal is absent from the tournament.
- Novak Djokovic and Andy Murray, both 37 years old, are nearing the end of their careers.

- Djokovic is recovering from knee surgery, and Murray recently underwent back surgery.
- Murray will participate only in doubles with his brother Jamie, marking his Wimbledon swansong.
- The dominance of the 'Big Four' (Federer, Nadal, Djokovic, Murray) may weaken this year.
- For the first time since 1996, neither Venus nor Serena Williams will compete at Wimbledon.
- The Williams sisters collectively won 12 singles titles and were runners-up eight times at Wimbledon.
- Carlos Alcaraz, at 20 years old, won Wimbledon 2023 and recently claimed the French Open.
- Jannik Sinner, 22, won the Australian Open and has risen in the singles rankings.
- Sinner's success on grass was highlighted by his recent win at Halle, his first grass-court title.
- Sinner faces Matteo Berrettini in a crucial match in the second round at Wimbledon.
- Among women, Iga Swiatek, a five-time Slam winner, is the top contender despite needing to develop her grass-court skills.
- Coco Gauff, seeded second, has reached the Wimbledon fourth round previously.
- Aryna Sabalenka's withdrawal leaves the field open for new contenders in the tournament.

Is the bad loan problem shifting to individuals from industries?

GS Paper III: Banking System

Though Indian banks are in the pink of health, the RBI is worried about slippages and delinquencies

DATA POINT

Vignesh Radhakrishnan

Until the mid-2010s, banks used to lend massive loans to big industries. When these businesses failed, their loans turned sour. Such bad loans stayed hidden for sometime. In 2015, the Reserve Bank of India (RBI) carried out a review, following which skeletons tumbled out of the closet. The share of bad loans reached as high as 10% in 2017, which meant that nearly one in every 10 loans had turned bad. A variety of debt recovery channels including the Insolvency and Bankruptcy Code, 2016, were used to recover the money. Given the relatively high amount of loans lent to well-known companies, the failures to repay the loans were widely publicised.

Following this debacle, banks started offering fewer loans to industries. They also managed to recover more and more bad loans. As a result, banks reached the pink of health in 2024. The latest Financial Stability Report (FSR) of the RBI shows that Gross Non-Performing Assets (GNPA) was at a decadal-low in March this year (Chart 1). NPA is the share of total loans that are overdue for more than 90 days.

However, reducing loans to industries meant that banks had to look elsewhere to lend and earn. The mid-2010s also saw an increase in loans given to the retail sector. These included personal loans, credit card receivables, housing loans, and similar products. The period also saw a proliferation of instant loan apps, which enticed unsuspecting consumers, especially those younger and more digitally savvy, to take more loans, leading to a debt trap.

The share of retail loans grew so much that the sector surpassed both industries and services to have the most outstanding loans.

The alarming growth was noticed by the RBI, which had to bring in regulatory measures to curb the rise. Still, the overall picture remains rosy. In fact, the GNPA ratio of personal loans has been reducing consistently reaching 1.2% in March 2024 – the lowest across sectors and within the segment (Chart 2).

While the situation does not seem to be alarming, the RBI is clearly worried. In the recent FSR report, it has cited two signs of incipient stress, which it believes should be closely watched. The first sign has to do with slippages, which are fresh additions of bad loans in a year. The share of slippages from retail loans in the overall new additions of NPAs is increasing at a rapid pace. In FY24, slippages from retail loans (excluding home loans) formed 40% of fresh additions of NPAs. Chart 3 shows the bank-type wise split.

The second sign has to do with delinquency level. Even if dues are overdue for a day, an account can be termed delinquent. Persistent delinquency will eventually turn an account into a NPA. Delinquency levels among small borrowers with personal loans below ₹50,000 remain high. The RBI report says most of these loans were sanctioned by NBFC-Fintech lenders, which are the major drivers behind the digital lending apps which process loans within hours. Between April 2021 and July 2022, Google reviewed 3,500 to 4,000 loan apps and removed/suspended over 2,500 from its Play Store.

Delinquency levels for personal loans below ₹50,000 are persistently high in small finance banks and NBFC-Fintechs (Chart 4).

If NPAs can be termed as a disease, slippages and delinquencies are symptoms of that. While the banking system appears mostly disease-free, the RBI is worried about the symptoms and is sending one warning signal after another. This time, it is worried about individuals and not industries.

Present perfect, future tense

The charts are based on data sourced from the Financial Stability Report - June 2024, the Trend and Progress of Banking in India, the press releases of the Reserve Bank of India, and the Rajya Sabha

Chart 1: The Gross Non-Performing Assets (GNPA) was at a decadal-low in March this year. NPA is the share of total loans that are overdue for more than 90 days
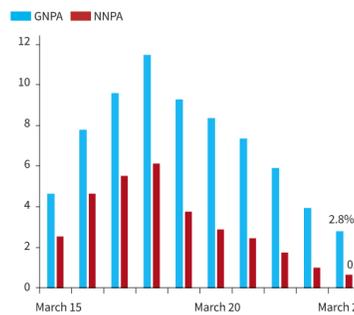

Chart 2: The GNPA ratio of personal loans has been reducing consistently, reaching 1.2% in March 2024 — the lowest across sectors and within the segment

Chart 3: The bank-type wise split of the share of slippages from retail loans in the overall new additions of NPAs. The chart excludes slippages in home loans. Slippages are fresh additions of bad loans in a year
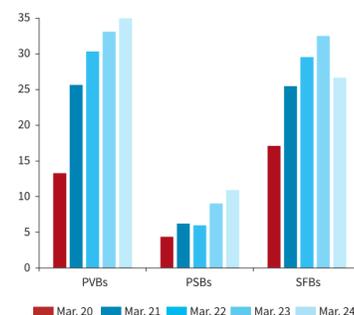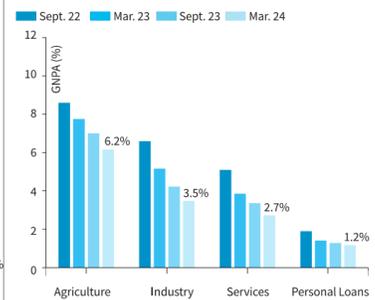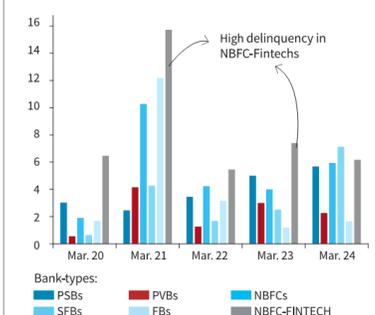

Chart 4: The delinquency levels for personal loans below ₹50,000 are persistently high in small finance banks and NBFC-Fintechs. Even if dues are overdue for a day, an account can be termed delinquent

- Various debt recovery methods, including the Insolvency and Bankruptcy Code, 2016, were used.
- Failures to repay loans were widely publicized due to the high amounts and well-known companies involved.
- Banks started offering fewer loans to industries and recovered more bad loans.
- By 2024, banks' financial health improved, with Gross Non-Performing Assets (GNPA) at a decadal low in March.
- NPA represents loans overdue for more than 90 days.
- Banks shifted focus to retail sector loans, such as personal loans, credit card receivables, and housing loans.
- Increase in instant loan apps led younger, digitally savvy consumers into debt traps.
- The share of retail loans grew significantly, surpassing industries and services.
- RBI noticed the growth and introduced regulatory measures.
- GNPA ratio for personal loans decreased to 1.2% in March 2024, the lowest across sectors.
- Despite a positive overall picture, RBI is concerned about incipient stress.
- RBI's FSR report highlights two signs of stress:
    1. Increasing slippages, or fresh bad loans, from retail loans.
    2. In FY24, slippages from retail loans (excluding home loans) formed 40% of fresh NPAs.
- The second sign of stress is high delinquency levels, where even one-day overdue accounts can become NPAs.
- High delinquency levels are seen among small borrowers with personal loans below ₹50,000.
- Most of these loans are sanctioned by NBFC-Fintech lenders, the main drivers of digital lending apps.
- Between April 2021 and July 2022, Google reviewed 3,500-4,000 loan apps and removed/suspended over 2,500 from its Play Store.
- Delinquency levels for small personal loans are high in small finance banks and NBFC-Fintechs.
- NPAs are compared to a disease, with slippages and delinquencies as symptoms.
- While the banking system appears healthy, RBI is concerned about the symptoms, particularly for individual borrowers.

On improving rural mobile connectivity (03 July)

Even though cellular networks seem omnipresent, their deployment and use vary significantly between urban and rural areas. According to the latest Telecom Subscription Data, urban tele-density in the countryis 127% while rural tele-density is 58%

- Mobile devices are integral to daily life for communication, financial transactions, and Internet access.
- Connectivity for these devices is provided by cellular (mobile) wireless networks.
- Cellular networks, such as 5G, consist of network equipment connected by communication links.
- These networks facilitate data movement between devices and other networks like the Internet.
- A cellular network is divided into two sub-networks: the Access Network (AN) and the Core Network (CN).

What are access and core networks?

Access Network (AN):

- Consists of base stations providing wireless connectivity within a limited coverage area.
- Base stations are installed across regions, often seen as towers with antennae on top.

Core Network (CN):

- Includes equipment facilitating connectivity to other networks, like the Internet.
- Operates centrally and is not colocated with base stations.
- Connected to base stations via optical fiber links known as backhaul.

Data Flow:

- Data from mobile devices passes through both base stations and the CN to reach its destination.
- Even nearby users connected to the same base station require data to pass through the central CN.

Mobility Support:

- CN is crucial for supporting user mobility within cellular networks.

What impedes rural connectivity?

- Urban areas in India have high tele-density (127%) compared to rural areas (58%), indicating a digital divide.
- Rural areas face challenges like affordability of mobile services, low population density, and geographic remoteness.

- Extending fiber infrastructure to rural locations is expensive and difficult, such as reaching villages in remote regions like the Himalayas.
- Current cellular networks, like 5G, are designed primarily for urban settings in developed countries, focusing on high data rates and low latency.
- There is a need for research and development to adapt cellular networks to efficiently cover large rural areas and address these challenges effectively.

What is the IEEE 2061-2024 standard?

- Research at IIT Bombay, led by Prof. Abhay Karandikar, focuses on affordable rural connectivity.
- Their work contributed to the IEEE-2061 standard, approved on June 6 by IEEE, defining a wireless network architecture for rural broadband access.
- The IEEE-2061 network includes both Core Network (CN) and Access Network (AN) components similar to cellular networks.
- Unlike 5G networks, IEEE-2061's AN is heterogeneous, combining macro-BS for large coverage and Wi-Fi for small coverage areas within villages.
- Devices in IEEE-2061 can seamlessly switch between Wi-Fi and macro-BS connectivity without service disruption, facilitated by integrated AN control functionality.
- The network supports coexistence of various technologies like 4G, 5G, 6G, Wi-Fi, and legacy networks, aiming to prevent issues such as call drops with its integrated control features.

What is a middle-mile network?

- IEEE-2061 standard proposes a multi-hop wireless middle-mile network for extending connectivity where optical fiber links are unavailable.
- This middle-mile network is cost-effective over long distances, using technologies like satellites or long-range Wi-Fi.
- Unlike 4G/5G networks where Internet connectivity relies on the Core Network (CN), IEEE-2061 allows for direct and alternate paths to the Internet from the Access Network (AN).
- AN in IEEE-2061 can handle communication between nearby users directly within the network, bypassing the CN, which is advantageous especially in rural areas.
- Developed at IIT Bombay under Prof. Karandikar's leadership, IEEE-2061 is the second standard following IEEE 1930.1-2022, aiming to provide affordable rural connectivity and innovate mobile network scalability.

Iran: limited democracy, unlimited theocracy

Iran's political system — which has been designed in such a way that the Shia clergy has ultimate authority in all critical matters related to the state, even as elections are held in regular intervals — is a child of revolution

GS Paper II: Iran

Stanly Johny

There's only a walking distance from the Imam Khomeini Square, the Qajar-era 19th century neighbourhood of the Iranian capital which used to be called Maidan-e-Toopkhaneh, to Ebrat Museum on Yarjani Street. A three-storey structure with torture wings, countless cells, echo corridors and iron doors, the building, designed by German engineers in the 1930s, was the headquarters of a section of the Shah's infamous secret police, SAVAK, before the 1979 revolution. All the dark corridors lead to a circular, roofless inner courtyard that's awash in sunlight. Sculptures of prisoners are hung from the iron grills of the courtyard. SAVAK used to hang prisoners on the grills and torture them – their screams would echo across the corridors and their suffering would be displayed for those in the courtyard. The museum has the images and names of the hundreds of inmates it once held – one of them was Ayatollah Ali Khamenei, the current Supreme Leader of the Islamic Republic.

History repeats

The Iranian authorities turned the prison into a museum in 2002, to showcase the brutalities of the Shah's royal dictatorship. For the regime, the museum is a microcosm of all the evils of the monarchy from which Iranians were "liberated" by the Islamic Revolution. But four decades after the revolution, repeated protests accuse the Islamic regime of the same repressive reign from which it claims to have liberated the Iranians. When discontent grew at home, the system's legitimacy was questioned. Voters' turnout in Iran's presidential and parliamentary elections started shrinking to new lows. In the 2021 presidential elections, in which hardliner Ebrahim Raisi won, voters' turnout was 48%, a record low. The country was forced to hold a snap presidential elections in June after President Raisi was killed in a helicopter crash. While Mr. Khamenei asked Iranians to overwhelmingly participate in the elections, the turnout fell to 39.9%, down from over 80% in 2009.

A unique system

Iran's unique political system – which has been designed in such a way that the Shia clergy has ultimate authority in all critical matters related to the state, even as elections are held in regular intervals – is a child of the revolution. While it's popularly called the "Islamic revolution", the anti-Shah popular movement was not only Islamic. True, Ayatollah Ruholla Khomeini, who, while in exile in Iraq's Najaf, had called for the Shah's ouster, and became the embodiment of the mass agitations in the 1970s. But Iranians from different political sections, including nationalists, liberals, leftists and trade unionists, had actively joined the movement, seeking freedom from the Shah's dictatorship.

The Shah, Mohammed Reza Pahlavi, who had to briefly flee the country in the early 1950s and was restored after the CIA helped the monarchists orchestrate a coup against the democratically elected Prime Minister Mohammad Mossadegh,

was more or less detached from the political reality on ground. He orchestrated grand ceremonies celebrating the monarchy (such as the extravagant 1971 celebration of "the 2,500th year of the Iranian monarchy" spending some $100 million), banned all political parties except the monarchist Resurgence Party (Hezb-e-Rastakhiz) and assumed himself the title of Aryan Sun (Aryamehr) – apolitical and spiritual guide of Iran. When an increasingly isolated Shah tried to consolidate more and more powers in his hands, SAVAK ran amok in the country, rounding up political dissidents.

Iranians are no strangers to political rebellion and defiance. In 1896, Naser al-Din Shah, the fourth Shah of Qajar Iran, was assassinated inside a mosque in Tehran. The assassination and its aftermath would eventually lead to the Constitutional Revolution of 1905-1911, which led to the establishment of a Parliament in Persia. Reza Shah Pahlavi ignored this history of rebellion when he unleashed his forces on increasingly disgruntled protesters, which eventually led to his own downfall. When the Shah fled the country in January 1979, Khomeini was in Paris. He landed in Tehran's Mehrabad airport, which was controlled by the revolutionaries, on February 1, 1979. They turned a disused

girls' school in central Tehran into a make-shift headquarters of the Revolutionary Council. And one of the first things Khomeini did was to form a paramilitary force – the Islamic Revolutionary Guard Corps. But the Islamists could not ignore other sections of the revolution completely. So, Khomeini ushered in a new system that would have an elected President and Parliament, while the clerics would remain firmly in control. He promised an Islamic revolutionary government based on Sharia, a model which he called Vilayat-e Faqih (Guardianship of the Faqih, or the Islamic Jurist).

Clerical control

Iran's state has both elected and unelected branches and the unelected branch is more powerful than the former. The President, Parliament (Majles) and the Assembly of Experts are directly elected, while the Supreme Leader, the Guardian Council and the Expediency Council are appointed by the clergy. The President is the head of the government, which is in charge of running the day-to-day affairs of the country, but is not the head of the state. The Supreme Leader is the most powerful person in the country and is both the political leader and spiritual guide of the Islamic Republic.

The presidential term is four years and Presidents cannot have more than two consecutive terms. The election process itself is largely considered fair (though there were disputes, such as the 2009 elections), but all the candidates are vetted by the Guardian Council, which usually disqualifies an overwhelming majority of the candidates. The 290-member Islamic Consultative Assembly (Majles) has the authority to legislate. But all the Bills the Majles passes should go to the unelected Guardian Council, which would vet whether the Bill is in compliance with the Islamic Constitution and values. The powerful Guardian Council has 12 members, a combination of six religious experts, who will directly be appointed by the Supreme Leader, and six Islamic legal jurists, nominated by the Chief Justice (who in turn is appointed by the Supreme Leader). So the Supreme Leader's office has direct or indirect control over the Guardian Council, which oversees the elections, vets the candidates and has a veto over Parliament.

Absolute authority

Unlike the President, the Supreme Leader doesn't have any fixed term. Since the 1979 revolution, Iran has had only two Supreme Leaders – Khomeini (who died in 1989) and Khamenei. The Constitution mandates the 88-member Assembly of Experts to elect the Supreme Leader. The Assembly, which also has the authority to oversee and dismiss the Supreme Leader, is directly elected, but the candidates are strictly vetted by the Guardian Council, whose members are directly or indirectly picked by the Supreme Leader. If there are legal disputes between the elected Majles and the unelected Guardian Council, the 45-member Expediency Council, which advises the Supreme Leader, will have ultimate adjudicating powers. And all 45 members of the Council are appointed by the Supreme Leader, who is also the Commander-in-Chief of the armed forces. In essence, the Islamic Constitution ensures that the Supreme Leader and the clerical establishment stay firmly in charge of all branches of the state.

Principalists and reformists

Iran's political class is broadly divided into two categories – principalists (also hardliners) and reformists. The principalists make up the conservative bloc that enjoys the support of the clergy, whereas reformists advocate political and social reforms from within. The election of Mohammad Khatami as President in 1997 was a critical moment for reformist politics. But Mr. Khatami, an influential and popular reformist, failed to usher in any major changes in the system. Hassan Rouhani, the former President, was also a reformist, while his incumbent, Ebrahim Raisi, was a principalist. As no candidate won 50% vote in the first round of the presidential election on June 28, Iran will have a run off between the top two vote-getters--reformist Masoud Pezeshkian and conservative Saeed Jalili--on July 5.

When Khomeini established his clerical rule after the revolution, many expected the new regime to collapse. On the contrary, Khomeini purged internal dissent and consolidated the clergy's grip when the country was fighting an eight-year long war with Iraq. Four decades later, the system the Ayatollah built has started showing signs of age, with repeated mass protests, state violence, and declining public interests in the electoral process, overshadowed by an unending economic crisis. But Iran's rulers seem undeterred, and try to project stability and continuity.

The article, published on September 28, 2022, has been updated.

Complete control: A woman walks past posters of Iranian presidential candidate Masoud Pezeshkian in Tehran on July 2. AFP

Iran: limited democracy, unlimited theocracy (03 July)

Iran's political system — which has been designed insuch a way that the Shia clergy has ultimate authority in all critical matters related to the state, even as elections are held in regular intervals — is a childof revolution

- The Ebrat Museum in Tehran, Iran, is located near Imam Khomeini Square in the historic neighborhood once known as Maidan-e-Toopkhaneh.
- It was originally built in the 1930s by German engineers and served as the headquarters of SAVAK, the Shah's secret police, until the 1979 revolution.
- The museum features a three-storey structure with torture wings, numerous cells, echo corridors, and iron doors.
- Inside, there is a circular, roofless inner courtyard where sculptures of prisoners hang from iron grills, symbolizing the past practice of hanging and torturing prisoners.
- SAVAK used to torture prisoners in this building, with their screams echoing through the corridors and their suffering displayed in the courtyard.
- The museum displays images and names of hundreds of inmates, including Ayatollah Ali Khamenei, who is now the Supreme Leader of Iran.

History repeats

- The Ebrat Museum in Tehran, Iran, was established in 2002 within a former prison once operated by SAVAK, the Shah's secret police.
- It serves as a museum to highlight the brutalities and repression under the Shah's royal dictatorship.
- The museum symbolizes the regime's portrayal of the Shah's era as oppressive, contrasting with the Islamic Revolution's promise of liberation.
- Despite the revolution's ideals, Iran has faced ongoing protests accusing the Islamic regime of similar repressive practices.
- Voter turnout in Iranian presidential and parliamentary elections has declined significantly in recent years.
- In the 2021 presidential election, won by hardliner Ebrahim Raisi, voter turnout dropped to 48%, a record low.
- A subsequent snap presidential election saw turnout decrease further to 39.9%, down from over 80% in 2009, raising questions about the regime's legitimacy and public discontent.

A unique system

- Iran's political system is influenced by Shia clergy, granting them ultimate authority over critical state matters despite regular elections.
- The 1979 revolution, often termed the "Islamic revolution," involved diverse political factions including nationalists, liberals, leftists, and trade unionists.
- Ayatollah Ruholla Khomeini led the movement against Shah Mohammed Reza Pahlavi's monarchy, supported by various dissenting groups seeking freedom from dictatorship.
- The Shah, backed by the CIA in a coup against Prime Minister Mohammad Mossadegh, centralized power and suppressed political opposition through SAVAK.
- Historical precedents of political rebellion in Iran, such as the 1896 assassination of Naser al-Din Shah and the Constitutional Revolution of 1905-1911, underscore Iranians' history of defiance.
- Reza Shah Pahlavi's authoritarian rule and suppression of protests eventually led to his overthrow in 1979.
- Khomeini returned from exile and established an Islamic revolutionary government, combining elected institutions with clerical oversight under the concept of Vilayat-e Faqih (Guardianship of the Islamic Jurist).

Clerical control

- Iran's political system features both elected and unelected branches, where unelected entities hold more power.
- Elected branches include the President, Parliament (Majles), and Assembly of Experts.
- Unelected branches include the Supreme Leader, Guardian Council, and Expediency Council, appointed by the clergy.
- The President manages day-to-day government affairs but is not the head of state.
- The Supreme Leader serves as both the political leader and spiritual guide, holding the highest authority in Iran.
- Presidential terms are limited to four years with a maximum of two consecutive terms.
- Election processes are generally deemed fair, though the Guardian Council vets candidates and can disqualify a significant majority.
- The Majles, with 290 members, legislates but its bills must pass through the Guardian Council for compliance with Islamic principles.
- The Guardian Council, composed of religious and legal experts, is influenced by the Supreme Leader's office, controlling elections and holding veto power over Parliament.

Absolute authority

- The Supreme Leader of Iran does not have a fixed term unlike the President.
- Since the 1979 revolution, Iran has had two Supreme Leaders: Khomeini (died in 1989) and Khamenei.
- The 88-member Assembly of Experts is tasked with electing and overseeing the Supreme Leader.

- Candidates for the Assembly are vetted by the Guardian Council, indirectly controlled by the Supreme Leader.
- In case of disputes between the elected Majles and unelected Guardian Council, the 45-member Expediency Council, appointed by the Supreme Leader, holds ultimate adjudicating powers.
- The Supreme Leader serves as Commander-in-Chief of Iran's armed forces and has significant influence over all branches of the state, ensuring clerical control per the Islamic Constitution.

Principalists and reformists

- Iran's political landscape divides broadly into two groups: principalists (hardliners) and reformists.
- Principalists are conservative and supported by the clergy, advocating for traditional values and policies.
- Reformists seek political and social reforms from within the system.
- Mohammad Khatami's election as President in 1997 marked a significant moment for reformist politics, but major changes were not realized during his tenure.
- Hassan Rouhani, another reformist President, served before Ebrahim Raisi, a principalist who is the current President.
- Recent presidential elections in Iran resulted in a runoff between reformist Masoud Pezeshkian and conservative Saeed Jalili.
- After the 1979 revolution, Ayatollah Khomeini consolidated clerical rule amidst internal dissent and the Iran-Iraq war.
- Iran's current political system faces challenges including mass protests, state violence, economic crises, and declining public interest in elections.
- Despite challenges, Iranian leaders aim to project stability and continuity in governance.

PRELIMS PRACTICE QUESTION

Question 1: The Financial Stability Report (FSR) is published by: (a) International Monetary Fund (IMF) (b) World Bank (c) Reserve Bank of India (RBI) (d) Securities and Exchange Board of India (SEBI)
Question 2: Consider the following statements regarding the Financial Stability Report (FSR): 1. The Financial Stability Report (FSR) is published by the Ministry of Finance in India. 2. The FSR provides an assessment of the risks to financial stability in the country. 3. The FSR is released biannually. Which of the statements given above is/are correct?

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

Question 3: The primary purpose of the Financial Stability Report (FSR) is to:
(a) Recommend interest rate changes by the RBI.
(b) Analyze the performance of the stock market.
(c) Evaluate the risks and resilience of the financial system.
(d) Provide guidance on individual investment decisions.

Question 4: Which country will host the 24th Meeting of the SCO Council of Heads of State (SCO Summit) on July 4, 2024?
A. Russia
B. Kazakhstan
C. India
D. China

Question 7: Which of the following statements is/are correct regarding the Financial Stability Report (FSR) published by the Reserve Bank of India (RBI)?
1. The FSR includes an analysis of the global macroeconomic environment.
2. The FSR is exclusively focused on the Indian financial sector without any consideration of global factors.

Select the correct answer using the code given below:
a) 1 only   b) 2 only
c) Both 1 and 2   d) Neither 1 nor 2

Question 8: Consider the following statements regarding the Financial Stability Report (FSR):
1. The FSR examines global economic conditions and their impact on India's financial stability.
2. The FSR is intended for use only by banking institutions and regulators.
3. The FSR includes recommendations for improving financial stability in India.

Which of the statements given above is/are correct?
a) 1 only
b) 1 and 3 only
c) 2 and 3 only
d) 1, 2, and 3

Question 9: Which of the following statements about the Indian Copyright Act, 1957, is/are correct?
1. The Act was enacted in 1957 and came into force in 1958.
2. The Act has been amended six times since its enactment.
3. Copyright registration is mandatory to file a lawsuit for infringement in India.

Select the correct answer using the code given below:
a) 1 only   b) 1 and 2 only
c) 2 and 3 only   d) 1, 2, and 3

Question 10: Consider the following statements regarding the Indian Copyright Act, 1957:
1. The Act was enacted to protect original works of literature, dramatic works, musical works, and artistic works.
2. Copyright protection in India is granted for the lifetime of the author plus 50 years after their death.

3. Registration of copyright is mandatory to claim copyright protection in India.

Which of the statements given above is/are correct?

a) 1 only   b) 1 and 2 only

c) 2 and 3 only   d) 1, 2, and 3

Question 11: Consider the following statements about the Indian Copyright Act, 1957:

1. The Act protects original ideas and concepts.
2. Copyright automatically subsists in any original work from the moment of creation.
3. Fair use of copyrighted material is not permitted under the Act.

Which of the statements given above is/are correct?

(a) 1 only

(b) 2 only

(c) 1 and 3 only

(d) 2 and 3 only

Question12: What category of works is NOT protected under the Indian Copyright Act, 1957?

(a) Literary works (books, poems, etc.)

(b) Dramatic works (plays, screenplays, etc.)

(c) Musical works (songs, compositions, etc.)

(d) Ideas and concepts

Question 13: Consider the following statements about Carbon Monoxide (CO):

1. CO is a colorless and odorless gas.
2. CO is lighter than air and tends to rise.
3. Exposure to high levels of CO can cause flu-like symptoms.

Which of the statements given above is/are correct?

(a) 1 and 2 only

(b) 1 and 3 only

(c) 2 and 3 only

(d) All of the above

Question 14: What is the primary source of Carbon Monoxide poisoning in homes?

(a) Leaking gas stoves

(b) Smoking cigarettes

(c) Faulty electrical wiring

(d) Improper use of household cleaning products

Question 15: The best way to prevent Carbon Monoxide poisoning in your home is to:

(a) Open windows frequently

(b) Install and maintain a carbon monoxide detector

(c) Never use charcoal grills indoors

(d) All of the above

ANSWER AND EXPLANATION

Question 1: The Financial Stability Report (FSR) is published by: (a) NITI Aayog (b) Ministry of Finance (c) Reserve Bank of India (RBI) (d) Securities and Exchange Board of India (SEBI)	**Answer: (c)** Reserve Bank of India (RBI) **Explanation:** The Reserve Bank of India (RBI) is responsible for publishing the Financial Stability Report (FSR) in India. The FSR assesses the risks and resilience of the Indian financial system.
Question 2: Consider the following statements regarding the Financial Stability Report (FSR): 1. The Financial Stability Report (FSR) is published by the Ministry of Finance in India. 2. The FSR provides an assessment of the risks to financial stability in the country. 3. The FSR is released biannually. Which of the statements given above is/are correct? a) 1 and 2 only b) 2 and 3 only c) 1 and 3 only d) 1, 2, and 3	**Answer:** b) 2 and 3 only **Explanation:** • **Statement 1 is incorrect:** The Financial Stability Report (FSR) is published by the Reserve Bank of India (RBI), not the Ministry of Finance. • **Statement 2 is correct:** The FSR indeed provides an assessment of the risks to financial stability in the country. • **Statement 3 is correct:** The FSR is released biannually (twice a year).
Question 3: The primary purpose of the Financial Stability Report (FSR) is to: (a) Recommend interest rate changes by the RBI. (b) Analyze the performance of the stock market. (c) Evaluate the risks and resilience of the financial system. (d) Provide guidance on individual investment decisions.	**Answer: (c)** Evaluate the risks and resilience of the financial system. **Explanation:** The FSR aims to identify potential risks and assess the overall health of the Indian financial system. Incorrect Options: (a) Interest rate decisions are based on various factors, not solely on the FSR. (b) FSR focuses on the broader financial system, not just the stock market. (d) The FSR doesn't provide investment advice.
Question 4: Which country will host the 24th Meeting of the SCO Council of Heads of State (SCO Summit) on July 4, 2024? A. Russia B. Kazakhstan C. India D. China	**Answer:** B. Kazakhstan. **Explanation:** The Shanghai Cooperation Organisation (SCO) is a Eurasian political, economic, and security organization. The 24th SCO Summit is scheduled to be held in Astana, Kazakhstan, on July 4, 2024. Kazakhstan currently holds the presidency of the SCO, rotating among member states annually. **Incorrect Options:** A. Russia: Russia is a founding member of the SCO and plays a significant role in the organization, but it is not hosting the upcoming summit in 2024.

	C. India: India hosted the 23rd SCO Summit virtually on July 4, 2023, but it is not hosting the 24th summit. D. China: China is another founding member of the SCO and has hosted previous summits, but it is not hosting the 2024 summit.
Question 5: Which of the following statements about the Shanghai Cooperation Organisation (SCO) is correct? 1. SCO was originally founded as the Shanghai Five in 1996. 2. The SCO has 10 member states as of 2024. 3. India became a full member of the SCO in 2017. 4. The SCO primarily focuses on military alliances among member states. **Select the correct answer using the code given below:** a) 1 and 2 only b) 1 and 3 only c) 1, 2, and 3 only d) 2 and 4 only	**Answer: b) 1 and 3 only**. **Explanation:** - **Statement 1:** Correct. The SCO was originally founded as the Shanghai Five in 1996 by China, Kazakhstan, Kyrgyzstan, Russia, and Tajikistan. - **Statement 2:** Incorrect. As of 2024, the SCO has eight full members. **Iran joined as the ninth full member in 2023.** - **Statement 3:** Correct. India became a full member of the SCO in 2017, not 2018. **Statement 4:** Incorrect. The SCO primarily focuses on political, economic, and security cooperation among member states, rather than military alliances.
Question 7: Which of the following statements is/are correct regarding the Financial Stability Report (FSR) published by the Reserve Bank of India (RBI)? 1. The FSR includes an analysis of the global macroeconomic environment. 2. The FSR is exclusively focused on the Indian financial sector without any consideration of global factors. Select the correct answer using the code given below: a) 1 only b) 2 only c) Both 1 and 2 d) Neither 1 nor 2	**Answer: a) 1 only** **Explanation:** - **Statement 1 is correct:** The FSR includes an analysis of the global macroeconomic environment to understand its impact on the Indian financial system. - **Statement 2 is incorrect:** The FSR is not exclusively focused on the Indian financial sector; it also considers global factors that could impact financial stability in India.
Question 8: Consider the following statements regarding the Financial Stability Report (FSR): 1. The FSR examines global economic conditions and their impact on India's financial stability. 2. The FSR is intended for use only by banking institutions and regulators. 3. The FSR includes recommendations for improving financial stability in India. Which of the statements given above is/are correct?	**Answer:** b) 1 and 3 only **Explanation:** - Statement 1 is correct: The FSR examines global economic conditions and their impact on India's financial stability. - Statement 2 is incorrect: The FSR is intended for use by a wide audience, including policymakers, financial institutions, and the

a) 1 only b) 1 and 3 only c) 2 and 3 only d) 1, 2, and 3	public, not only by banking institutions and regulators. Statement 3 is correct: The FSR includes recommendations for improving financial stability in India.
Question 9: Which of the following statements about the Indian Copyright Act, 1957, is/are correct? 1. The Act was enacted in 1957 and came into force in 1958. 2. The Act has been amended six times since its enactment. 3. Copyright registration is mandatory to file a lawsuit for infringement in India. Select the correct answer using the code given below: a) 1 only b) 1 and 2 only c) 2 and 3 only d) 1, 2, and 3	**Answer:** b) 1 and 2 only **Explanation:** • **Statement 1 is correct:** The Indian Copyright Act was enacted in 1957 and came into force in 1958. • **Statement 2 is correct:** The Act has been amended six times since its enactment, with the most recent amendment in 2012. **Statement 3 is incorrect:** Copyright registration is not mandatory to file a lawsuit for infringement in India; however, it provides prima facie evidence in court.
Question 10: Consider the following statements regarding the Indian Copyright Act, 1957: 1. The Act was enacted to protect original works of literature, dramatic works, musical works, and artistic works. 2. Copyright protection in India is granted for the lifetime of the author plus 50 years after their death. 3. Registration of copyright is mandatory to claim copyright protection in India. Which of the statements given above is/are correct? a) 1 only b) 1 and 2 only c) 2 and 3 only d) 1, 2, and 3	**Answer:** a) 1 only **Explanation:** • **Statement 1 is correct:** The Indian Copyright Act, 1957, protects original works of literature, dramatic works, musical works, and artistic works. • **Statement 2 is incorrect:** Copyright protection in India is granted for the lifetime of the author plus 60 years after their death, not 50 years. **Statement 3 is incorrect:** Registration of copyright is not mandatory to claim copyright protection in India. Copyright protection is automatic upon creation of the work, but registration provides legal evidence in court proceedings.
Question 11: Consider the following statements about the Indian Copyright Act, 1957: 1. The Act protects original ideas and concepts. 2. Copyright automatically subsists in any original work from the moment of creation. 3. Fair use of copyrighted material is not permitted under the Act. Which of the statements given above is/are correct? (a) 1 only (b) 2 only (c) 1 and 3 only (d) 2 and 3 only	**Answer: (b)** 2 only **Explanation:** Statement 1 is incorrect. The Copyright Act protects the expression of ideas, not the ideas themselves. Statement 2 is correct. Copyright protection arises automatically upon creation of an original work. Statement 3 is incorrect. Fair use allows limited use of copyrighted material for purposes like criticism, commentary, or research, without permission from the copyright holder. Incorrect Options:

	(a) & (c) - Exclude the concept of automatic copyright protection. (d) - Fair use is a recognized exception under the Act.
Question12: What category of works is NOT protected under the Indian Copyright Act, 1957? (a) Literary works (books, poems, etc.) (b) Dramatic works (plays, screenplays, etc.) (c) Musical works (songs, compositions, etc.) (d) Ideas and concepts	**Answer: (d)** Ideas and concepts **Explanation:** The Copyright Act protects the expression of ideas, not the ideas themselves. Options (a), (b), and (c) are all examples of protectable works. Incorrect Options:
Question 13: Consider the following statements about Carbon Monoxide (CO): 1. CO is a colorless and odorless gas. 2. CO is lighter than air and tends to rise. 3. Exposure to high levels of CO can cause flu-like symptoms. Which of the statements given above is/are correct? (a) 1 and 2 only (b) 1 and 3 only (c) 2 and 3 only (d) All of the above	**Answer: (d)** All of the above **Explanation:** • CO is a colorless, odorless gas, making it difficult to detect without a carbon monoxide detector. • CO is slightly lighter than air and can accumulate in poorly ventilated spaces. • CO exposure can cause headaches, nausea, dizziness, and even death at high concentrations. • Incorrect Options: • None of the statements are individually incorrect.