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THE HINDU ANALYSIS

News Decoded for UPSC & State PCS

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PRELIMS · MAINS · EDITORIALS · PRACTICE MCQs

COMPILED BY

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PRACTICE

01

Green Credit Programme & Mission LiFE

GS 3 · ENVIRONMENT

CONSERVATION

WHY IN NEWS

The modality for tree plantation and eco-restoration of degraded forest lands under the **Green Credit Programme (GCP)** — first notified on 22 February 2024 — was **revised on 29 August 2025**. A dedicated Green Credit Programme Portal (moefccgcp.in) has been developed to operationalise the scheme.

What is the Green Credit Programme?

- ◆ An **innovative market-based mechanism** to incentivise environmentally positive actions and advance the objectives of **Mission LiFE** (Lifestyle for Environment), which drives community-level behavioural change towards sustainable, environment-friendly lifestyles.
- ◆ Aims to **increase green cover, enhance carbon sequestration, restore degraded lands** and reduce the carbon footprint through adoption of environment-friendly technologies and practices.

- ◆ Notified via the **Green Credit Rules, 2023** on **12 October 2023** under the **Environment (Protection) Act, 1986**, to encourage voluntary positive action rewarded with issuance of **Green Credits**.

Institutional Architecture

- ◆ **Administrator:** The **Indian Council of Forestry Research and Education (ICFRE), Dehradun** is responsible for effective implementation, management, operation and issuance of green credits.
- ◆ **Land selection:** Degraded forest land parcels are selected and registered by the **State Forest Department** after due verification on the ground.
- ◆ **Verification:** A designated agency verifies the claim for Green Credits and submits a report to the Administrator on the activities undertaken by an applicant.
- ◆ A comprehensive **Manual on Monitoring & Reporting of Restoration Activities** facilitates effective implementation and monitoring of the programme.

KEY FACTS AT A GLANCE

- ▶ **Parent Act:** Environment (Protection) Act, 1986
- ▶ **Rules:** Green Credit Rules, 2023 (notified 12 Oct 2023)
- ▶ **Modality notified:** 22 Feb 2024; **revised:** 29 Aug 2025
- ▶ **Administrator:** ICFRE, Dehradun | **Nodal Ministry:** MoEFCC
- ▶ **Portal:** moefccgcp.in

Significance for Ecology & Communities

- ◆ Restoration of degraded forests through **active participation of public and private sector entities** aims to **enhance biodiversity** and improve the productivity of forest resources.
- ◆ Directly benefits **local communities** by increasing the availability of **timber, non-timber forest produce (NTFP), fodder, water and other ecosystem services**.
- ◆ Positions market-based incentives as a complement to regulatory mechanisms in achieving India's climate and restoration goals under the **Bonn Challenge** and net-zero commitments.

02

AI & Cyber: The Double Helix of Security Threats

GS 3 · SCI-TECH

INTERNAL SECURITY

WHY IN NEWS

The convergence of **Artificial Intelligence (AI)** and cyber threats has emerged as one of the most critical concerns of the modern world. In an editorial, former NSA **M.K. Narayanan** warns that AI-powered malware and autonomous agents are reshaping the global security landscape and demand new oversight.

AI and cyber, the double helix of today's security threats

The rapid proliferation of digital technologies is reshaping the global security landscape. What was once an interconnected, but relatively limited, digital world, has altered into a complex, interconnected ecosystem where dangers and threats lurk at every step. The combination of Artificial Intelligence (AI) and cyber threats has emerged as one of the most critical concerns of the modern world.

While AI has changed from being merely an operational efficiency mechanism into an absolute infrastructure mandate, cyber threats are becoming more sophisticated, harder to detect and more difficult to mitigate. Today, AI-powered malware can adapt and evolve in response to changes in its environment, making it harder for traditional anti-virus software to detect. The global interconnectedness of digital systems has also raised the ante as far as cyber attacks are concerned. Malicious autonomous agents are today well positioned to undermine the legacy of "Zero Trust" protocols, aggravating insider threat vectors.

Meanwhile, as seen in the war in Ukraine, newer technologies are demonstrating the potential to undermine conventional military calculus through asymmetric impact. The rapid proliferation of digital technologies and systems across every discipline, cyber breaches and malicious activities are impacting every level of security. Many governments facing sophisticated cyber adversaries are drawing up a security architecture which involves a blend of innovation, policy coherence and strategic realism, but still lag behind.

A new disruptive era
AI, meanwhile, is reshaping every consequential domain of human activity. AI's Large Language Models (LLM) are intruding into many business enterprises, without either proper training or evolution of the human interface. As 'Agentic' AI — as distinct from Generative AI — becomes a force to reckon with, problems attached to AI implementation are set to become even more complex. The catalyst for such concerns is the arrival of the latest AI systems, notably Mythos, developed by United States firm Anthropic. According to experts it demonstrates an uncanny ability to detect 'Zero-day' vulnerabilities across major operating systems. What is evident is that AI is beginning to test the limits of legacy systems.

AI's overarching influence makes it essential to understand the risks and threats it poses, especially when combined with cyber capabilities, where the danger grows exponentially. AI has already transformed modern warfare, as seen in the Russia-Ukraine conflict and the U.S./Israel-Iran war. AI-powered smart systems can detect, track, and predict



M.K. Narayanan
Former Director,
Intelligence Bureau,
a former National
Security Adviser, and
a former Governor
of West Bengal

missile trajectories with remarkable accuracy. AI can also provide different kinds of intelligence from photos, text, radio, and electromagnetic signals to deny adversaries a tactical advantage. Munitions, such as systems dubbed 'Goalkeeper' and 'Whiplash' can independently identify and strike targets. Yet, nations, particularly the U.S., have not yet demonstrated a level of sagacity on how best to wield this power and in a manner that does not endanger human civilisation.

These developments are fueling concerns about AI's increasingly capable models and robots replace human roles. LLMs and autonomous agents are already performing complex tasks once reserved for people. The World Economic Forum warns that while AI will strengthen cyber defences, it will also enable more sophisticated automated attacks, potentially rendering current "Zero Trust" protocols ineffective. This raises concerns that hard power may increasingly be shaped by nations and organisations at the forefront of AI.

Companies in the West such as Anthropic and Palantir are behaving as if they own the world of tomorrow, since they hold the key to the world's mightiest technology. Anthropic has reached a stage today where with Mythos, it creates the spectre of all-encompassing power residing in a single instrument that is not subject to any rules. China, perhaps, has its own version of Anthropic or something resembling it, but this is of little comfort to the rest of the world. What is becoming clearly evident is that an attacker with the latest version poses a grave threat to not merely one country but an entire civilisation.

An AI 'power shift'

As AI technologies become more rampant and uncontrollable, existing rules concerning cyber security may require to be completely rewritten. Many experts warn that as 'Agentic' Autonomous Operations" become even more sophisticated, the world could reach an inflection point that has grave forebodings for the world. Whether Mythos is the harbinger of this is yet to be determined, but it is generally acknowledged that the newer generations of AI machines provide opportunities for 'rogue groups' to demonstrate capabilities that were once associated with only nation states. As Agentic AI begins to displace Generative AI, enabling it to act more autonomously, threat levels are certain to go up still further. AI has, hence, the potential to become the dominant source of military and economic power, even as the rules to govern AI are still in a fledgling state. The huge call has already been sounded by the pontiff of Anthropic, the AI firm that makes models such as Mythos, that it has the potential to become the dominant source of military and economic power as civilisation advances.

Notwithstanding the god-like properties of

existing modern AI models, experts warn that they are often subject to 'hallucinations', thus giving scope for distortions, producing misleading reactions. Judgments in such cases tend, quite often, to be subjective. Even otherwise, biases are known to creep into decisions dictated by AI, enhancing the danger posed by unrestricted reliance on AI. Furthermore, experts warn that it is vitally important to guard against such algorithmic radicalisation, and ensure that AI platforms do not push opinion makers towards extreme views.

A future that needs oversight, wisdom

The world, thus, appears to have reached a tipping point in AI progress and development. Already, some companies that are leading the AI charge are accusing others of stealing their technologies and expanding on them to their advantage. The latest is a charge made by the U.S. against China, viz., that China's 'Moonshot' AI stole from Anthropic's most sophisticated AI Large Language Model 'Fable', to help create its latest AI version. Predictably, China has rejected this charge, but it reflects the intensity of the competition between the U.S. and China in this area. If Anthropic's claim is true — that its latest model has surpassed "all but the most skilled humans" in finding and exploiting security vulnerabilities in everything from popular operating systems to cryptographic software — the world could face a new kind of apocalypse.

The world has steadily progressed from abiding concerns of stagnant economic growth to doomsday technologies, and this merits a great deal of introspection. Atriusm is not enough to decide on how to handle a technology that is about to eat up the world. There are several aspects of advanced AI that clearly demand more introspection, but this is not evident. As AI increasingly enters into the arena of defence sensing and warning, there is a need not only to keep machines under human control but also to ensure that AI-dictated warnings do not curtail proper understanding and reality.

Those steeped in defence aspects already know the gap that exists between warning and understanding of what might happen, and how critical this is in strategic terms. High-powered AI systems may often prove unreliable as they may demonstrate a bias towards national security given that algorithms often display such biases. The world, hence, needs to reach an understanding on how best to deal with this new technology which can, and could, end or make the future of the world. What we have seen in Ukraine and West Asia is not even the tip of this iceberg. Better to "cross the river by feeling the stones" is a better maxim than "blind prejudice or unadulterated endorsement of a new technology".

A New Disruptive Era

- What was once an interconnected but **relatively limited** digital world has become a complex, interconnected ecosystem where **dangers and threats lurk at every step**.
- AI has shifted from being merely an **operational-efficiency mechanism** to an **absolute infrastructure mandate**, even as cyber threats grow more sophisticated, harder to detect and tougher to mitigate.
- AI-powered malware** can adapt and evolve in response to its environment, making it harder for traditional anti-virus software to detect; global interconnectedness has raised the stakes for cyber attacks.
- Malicious autonomous agents** are well positioned to undermine the legacy of **'Zero Trust' protocols**, aggravating insider-threat vectors.

The AI 'Power Shift'

- Western firms such as **Anthropic and Palantir** are behaving as if they own the world of tomorrow, since they hold the key to the world's mightiest technology.
- With advanced frontier models, the editorial warns of the spectre of **all-encompassing power residing in a single instrument** not subject to any rules; a rival power may be developing its own version, offering little comfort.
- An attacker armed with the **latest AI version** poses a grave threat not merely to one country but to an **entire civilisation**.
- As AI becomes more rampant and uncontrollable, **existing rules concerning cyber security may need to be completely rewritten**.

A Future That Needs Oversight & Wisdom

- Modern AI models remain subject to **'hallucinations'** — producing distortions and misleading reactions — while their judgments can be subjective and shaped by **algorithmic biases**.

- ◆ There is a need not only to keep machines under human control, but also to ensure that AI-dictated warnings do not outrun proper understanding and reality.
- ◆ High-powered AI systems may often prove unreliable as they demonstrate a bias towards national security given that **algorithms often display such biases** — better to ‘cross the river by feeling the stones’ than offer blind endorsement of new technology.

◆ KEY TERMS FOR PRELIMS

- ▶ **Zero Trust:** A security model of ‘never trust, always verify’ — no user/device is trusted by default.
- ▶ **Autonomous Agents:** AI systems that perceive, decide and act with minimal human intervention.
- ▶ **Algorithmic Bias:** Systematic, repeatable errors in AI output that create unfair or skewed outcomes.
- ▶ **LLM:** Large Language Model — AI trained on vast text corpora to generate human-like language.

03

‘Proof of Life’: Births & Deaths (Amendment) Bill 2026

GS 2 · POLITY

GOVERNANCE

WHY IN NEWS

The **Registration of Births and Deaths (Amendment) Bill, 2026**, passed in the Lok Sabha, amends **Section 13(3)** of the 1969 Act. It reworks how **delayed registrations** are approved, even as an editorial cautions that ‘bureaucratic paperwork must not result in exclusion’.

THE HINDU · Editorial

‘Proof of Life’ · Page 6, GS 2

Proof of life

Bureaucratic paperwork must not result in exclusion

The Registration of Births and Deaths (Amendment) Bill 2026 passed in the Lok Sabha amends Section 13(3) of the 1969 Act. In the updated framework, registrations delayed for up to two years still require a district, a subdivisional or an authorised executive magistrate’s order, but when the delay exceeds two years, a judicial magistrate is required to verify the event and pass an order. The 2023 amendment rendered birth certificates the principal, in fact near-conclusive, proof of date and place of birth for school admission, voter rolls and applications for passport, Aadhaar, driving licence and government jobs. It also allowed the Centre and States to create digital databases, and required them to share data with the Registrar General. As the certificate’s gatekeeping power grew, so did the incentive to obtain one fraudulently, leading to the 2026 amendment. However, the Bill’s passage lacked debate in the Lok Sabha as the Opposition was protesting the July 20 police crackdown on the CJP protests. Since identity documents have also become more politically sensitive, moving potentially more contentious cases into courts insulates the administration from accusations that it is arbitrarily granting or refusing documentation. But while judicial scrutiny places the decision at arm’s length from the executive, erroneous decisions could prove more difficult for disadvantaged applicants to rectify.

The amendment also leaves the evidentiary rules unchanged. If the government believed executive magistrates were approving suspicious applications because the evidentiary standards were too lax, it could have prescribed more rigorous documentation, but it has not. Further, how the risk of fraudulent registrations rises after two years is unclear; the government has also not published evidence justifying a judicial magistrate’s intervention at two years or whether it considered less burdensome alternatives. For now, it appears to be a compromise based possibly on shorter delays being common enough for administrative responses to resolve. Registrations are also not infrequently delayed for valid reasons, for example because they transpired in remote areas, or undocumented migrants realised a need for educational certificates. But when identity documents become indispensable to access state support, the government’s policy instinct has been to raise the documents’ level of assurance rather than render them more accessible. In the same vein, the amendment may further a broader philosophy that, in pursuit of bureaucratic certainty, treats the wrongful exclusion of legitimate citizens as an acceptable price to minimise the risk of wrongful inclusion. And the Rajya Sabha must debate the Bill to clarify whether this trade-off is backed by sufficient evidence.

What the Bill Changes

- ◆ Registrations **delayed up to two years** still require the order of a district, sub-divisional or authorised **executive magistrate**.

- ◆ Where the delay **exceeds two years**, a **judicial magistrate** is now required to verify the event and pass an order — the core shift introduced by the amendment.
- ◆ Backdrop: the **2023 amendment** rendered birth certificates the **principal, near-conclusive proof** of date and place of birth for school admission, voter rolls, and applications for **passport, Aadhaar, driving licence and government jobs**.
- ◆ The 2023 law also allowed the Centre and States to create **digital databases** and required data-sharing with the **Registrar General of India (RGI)**.

The Editorial's Concerns

- ◆ The amendment **leaves the evidentiary rules unchanged**: if the worry was executive magistrates approving suspicious applications due to lax standards, more rigorous documentation could have been prescribed — but was not.
- ◆ It is **unclear how the risk of fraud rises after two years**; the government has not published evidence justifying judicial intervention at exactly two years, or whether less burdensome alternatives were considered.
- ◆ Registrations are often delayed for **valid reasons** — remote areas, or undocumented migrants realising a need for certificates — so raising the bar risks **wrongful exclusion of legitimate citizens** in the pursuit of bureaucratic certainty.

◆ SYSTEMIC GAPS IN THE CRS

- ▶ **Regional disparities**: significant variation in quality and completeness of Civil Registration System (CRS) implementation across States and regions.
- ▶ **Delayed registration**: many births/deaths are not registered within the legally prescribed **21-day period**, hurting timeliness and reliability of vital statistics.
- ▶ **Poor mortality data**: death registration does not necessarily include **medically certified causes of death**, limiting CRS utility for public-health planning and disease surveillance.

◆ CONSTITUTIONAL / LEGAL NOTES

- ▶ **Parent law**: Registration of Births and Deaths Act, 1969 (a Central law; subject is in the Concurrent List).
- ▶ **Key authority**: Registrar General of India (RGI) coordinates the CRS.
- ▶ **Executive vs Judicial Magistrate**: the amendment moves >2-year delayed cases from executive to judicial scrutiny.

04

Critical Minerals: The Foundation of Strategic Power

GS 3 · ECONOMY

RESOURCE SECURITY

WHY IN NEWS

Critical minerals have moved from the margins of resource policy to the **centre of industrial strategy and security**. As decarbonisation and digitalisation accelerate, mineral security is becoming as important as oil once was — with China's dominance turning them geopolitical, not merely commercial.

Critical minerals, the foundation of strategic power

Critical minerals have moved from the margins of resource policy to the centre of industrial strategy and security. Lithium, cobalt, nickel, graphite, copper and rare earth elements are foundational to electric vehicles, storage, renewable power, semiconductors, defence and advanced manufacturing. As decarbonisation and digitalisation accelerate, mineral security is becoming as important as oil once was. The global picture is concentrated. For copper, lithium, nickel, cobalt, graphite and rare earth elements, the average market share of the top three refining countries rose to 86% in 2024, from around 82% in 2020. Incremental supply is tied to a few nodes: Indonesia for nickel, and China for cobalt, graphite and rare earths. China is the leading refiner in 19 out of 20 strategic minerals with an average market share of about 70%, making minerals geopolitical, not merely commercial.

Geopolitical risk as a factor

Clean energy transitions will require minerals far beyond today's production systems. The current copper project pipeline points to a potential 30% supply shortfall by 2035. Lithium appears better supplied in the near term but rising demand is expected to drive the market into deficit by the 2030s. Rare earth demand will rise sharply as wind power, electronics and magnets expand.

Geopolitical risk is compounding these pressures. China's rare earth export controls announced in 2025 created concerns across energy, automotive, defence, aerospace, Artificial Intelligence (AI) and semiconductors. Major economies are responding quickly. The European Union (EU) Critical Raw Materials Act sets 2030 benchmarks of 10% domestic extraction, 40% processing and 25% recycling, and no more than 65% from a single country. The United States is diversifying supply chains through partnerships.

India's clean energy and manufacturing ambitions are mineral intensive. Under a net zero scenario, cumulative demand for critical energy



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Critical mineral security will define India's industrial and strategic trajectory

transition minerals could reach roughly 169 million tonnes by 2070, about 51% higher than under a current policy pathway. Copper demand will rise with power systems; rare earth demand will grow with wind energy and advanced manufacturing.

India has domestic potential, including reserves of cobalt (44.9 million tonnes), copper (163.9 million tonnes), graphite (211.6 million tonnes) and nickel (189 million tonnes), along with monazite deposits containing rare earth oxides. Recycling could eventually meet up to a quarter of copper and graphite demand by mid-century. Yet, reserves have not ensured supply security. India remains import dependent for lithium, cobalt and nickel, while graphite and China-dominated processing expose it to disruption as demand scales. The critical gap is processing and refining. India's position differs from the EU, the U.S. and Australia, which are building integrated supply chains through mandates, partnerships and processing investments. India is still developing foundational capability. While several minerals are processed domestically, capacity and high-purity production remain constrained. It has bulk-mineral experience but still relies on imports for high-purity critical mineral products.

This is where much value and vulnerability sit. In 2024, China accounted for over 90% of rare earths and graphite processing, nearly 75% of cobalt and 70% of lithium chemicals. India must build midstream capacity to participate meaningfully in supply chain realignment.

Structural constraints

Several constraints slow progress. Exploration remains relatively shallow, regulatory clearances can be time-consuming, private participation is limited and remote-region project economics are challenging. Processing is a larger bottleneck: India lacks some high-purity input facilities, while copper and graphite face smelting, purification and scale constraints. Recycling will play a role

but cannot substitute for primary supply in the near term because feedstock, collection and technology remain limited.

India's policy response since 2023 marks a shift. The government has identified 30 critical minerals, strengthened regulatory frameworks, and launched the National Critical Mineral Mission to support the value chain. The mission targets 1,200 domestic exploration projects by 2030-31, production of at least 15 critical minerals, and acquisition of 50 overseas mining assets by Indian companies. The Khanij Bidesh India Limited (KABIL) has secured 15,703 hectares in Argentina's Catamarca province for lithium exploration, while the 2026-27 Budget proposed rare earth corridors in Odisha, Kerala, Andhra Pradesh, and Tamil Nadu. The India-U.S. critical minerals and rare earths framework signed in May 2026 provides an additional diplomatic lever.

Mission to execution

The next phase is execution. Processing and refining must become a national industrial priority, backed by infrastructure and targeted incentives. Private capital needs better geological data, predictable approvals and risk sharing. India should also operationalise strategic stockpiles for critical minerals, accelerate applied research and development through industry partnerships, scale domestic capabilities and diversify overseas supply through trusted partners and platforms.

India energy transition, electronics, semiconductor, defence manufacturing, and advanced industrialisation all depend on secure mineral supplies. While individual policy measures are necessary, they are insufficient. A comprehensive strategy should establish mineral-specific risk thresholds, integrate recycling into supply planning, set measurable milestones, and create a coordinated institutional framework. The priority now is to convert potential into capability and reduce strategic vulnerability through sustained execution.

A Concentrated, Geopoliticised Supply Chain

- ◆ **Lithium, cobalt, nickel, graphite, copper and rare earth elements (REEs)** are foundational to electric vehicles, storage, renewable power, semiconductors, defence and advanced manufacturing.
- ◆ For copper, lithium, nickel, cobalt, graphite and REEs, the average market share of the **top three refining countries rose to 86% in 2024**, up from ~82% in 2020; incremental supply is tied to a few nodes — **Indonesia (nickel)** and **China (cobalt, graphite, rare earths)**.
- ◆ **China is the leading refiner in 19 of 20 strategic minerals** with an average market share of about **70%**, making minerals geopolitical rather than commercial.

86%

Top-3 refiners' share, 2024 (from ~82% in 2020)

19/20

Strategic minerals China leads in refining

~30%

Projected copper supply shortfall by 2035

169 Mt

India's cumulative CETM demand by 2070 (net-zero)

Geopolitical Risk as a Factor

- ◆ The current copper project pipeline points to a potential **30% supply shortfall by 2035**; lithium is better supplied near-term but rising demand may drive the market into **deficit by the 2030s**. REE demand will rise sharply with wind power, electronics and magnets.
- ◆ **China's rare-earth export controls (2025)** created concerns across energy, automotive, defence, aerospace, AI and semiconductors — prompting major economies to respond quickly.
- ◆ Under a net-zero scenario, India's cumulative demand for critical energy-transition minerals (CETMs) could reach roughly **169 million tonnes by 2070**, about **51% higher** than under a current-policy pathway.

India's Endowment vs the Processing Gap

- ◆ India has domestic **reserves** — cobalt (44.9 Mt), copper (163.9 Mt), graphite (211.6 Mt), nickel (189 Mt) — plus monazite deposits containing rare-earth oxides; recycling could meet up to a quarter of copper & graphite

demand by mid-century.

- ◆ Yet reserves have not ensured supply security: India remains **import-dependent for lithium, cobalt and nickel**, while graphite and China-dominated processing expose it to disruption.
- ◆ **The critical gap is processing and refining.** In 2024, China accounted for over **90% of rare-earth and graphite processing, ~75% of cobalt and 70% of lithium chemicals**. India must build midstream capacity to participate meaningfully in any supply-chain realignment.

◆ INDIA'S POLICY RESPONSE (SINCE 2023)

- ▶ **30 critical minerals** identified; regulatory frameworks strengthened.
- ▶ **National Critical Mineral Mission (NCMM)** launched to support the value chain.
- ▶ Targets: **1,200 domestic exploration projects** by 2030-31; production of at least **15 critical minerals**; acquisition of **50 overseas mining assets**.
- ▶ **KABIL** secured **15,703 hectares** in Argentina's Catamarca province for lithium exploration.
- ▶ **2026-27 Budget** proposed rare-earth corridors in **Odisha, Kerala, Andhra Pradesh & Tamil Nadu**.

The 30 Critical Minerals of India

Source Graphic

India's List of 30 Critical Minerals

1. Antimony	15. Nickel	iv. Neodymium	20. Rhenium
2. Beryllium	16. PGE	v. Promethium	21. Selenium
3. Bismuth	i. Platinum	vi. Samarium	22. Silicon
4. Cadmium	ii. Palladium	vii. Europium	23. Strontium
5. Cobalt	iii. Rhodium	viii. Gadolinium	24. Tantalum
6. Copper	iv. Ruthenium	ix. Terbium	25. Tellurium
7. Gallium	v. Iridium	x. Dysprosium	26. Tin
8. Germanium	vi. Osmium	xi. Holmium	27. Titanium
9. Graphite	17. Phosphorous	xii. Erbium	28. Tungsten
10. Hafnium	18. Potash	xiii. Thulium	29. Vanadium
11. Indium	19. REE	xiv. Ytterbium	30. Zirconium
12. Lithium	i. Lanthanum	xv. Lutetium	
13. Molybdenum	ii. Cerium	xvi. Scandium	
14. Niobium	iii. Praseodymium	xvii. Yttrium	

Q. Critical minerals are increasingly becoming a strategic resource for India's energy transition, technological advancement and national security. Examine the challenges associated with India's dependence on critical mineral imports and suggest measures to build a resilient and diversified critical mineral supply chain.

प्रश्न: महत्वपूर्ण खनिज भारत के ऊर्जा संक्रमण, तकनीकी प्रगति और राष्ट्रीय सुरक्षा के लिए तेजी से एक रणनीतिक संसाधन बनते जा रहे हैं। महत्वपूर्ण खनिजों के आयात पर भारत की निर्भरता से जुड़ी चुनौतियों का परीक्षण कीजिए तथा एक सुदृढ़ एवं विविधीकृत महत्वपूर्ण खनिज आपूर्ति शृंखला विकसित करने के उपाय सुझाइए।

(15 Marks · 250 Words)

05

The Problem with India's FTA Strategy

GS 3 · ECONOMY

EXTERNAL SECTOR

WHY IN NEWS

India's trade with key FTA partners such as the ASEAN countries has become increasingly **import-driven**, resulting in widening trade deficits. The data point questions the assumption that FTAs automatically stimulate export growth and Global Value Chain (GVC) integration.

THE HINDU · Data Point

Surender Singh · Page 7, GS 3

The problem with India's free trade agreement strategy

India's trade with key FTA partners such as the ASEAN countries has become increasingly import-driven, resulting in widening trade deficits

DATA POINT

Surender Singh

Over the past few years, India has shown great interest in trade diplomacy to promote its economic and strategic interests. India's new founded enthusiasm in external engagement has culminated in Free Trade Agreements (FTAs) with the UAE, Australia, Oman, the U.K., the European Union, and most recently, New Zealand. Its imperative to enhance market access continues to extend the reach of its trade architecture through ongoing trade talks with the U.S., Gulf countries and Canada, highlighting a decisive shift towards bilateralism as a vehicle of market access, value chain integration and economic dynamism. There is an emerging view among policymakers, trade diplomats, and geopolitical analysts that FTAs are indispensable instruments of economic statecraft. However, the enthusiasm on enhanced market access through trade agreements and Global Value Chain (GVC) integration is founded on a set of implicit assumptions and dominant narratives that continue to maintain a striking analytical silence. The argument that FTAs stimulate export growth and GVC integration warrants a far more nuanced view.

Widening trade deficit
India's FTA experience with Asian economies has not been favourable. India's trade with key FTA partners such as the Association of Southeast Asian Nations (ASEAN), South Korea, Japan and Singapore has become increasingly import-driven, resulting in widening trade deficits. Data shows that India's trade deficit with ASEAN increased sharply from \$10.4 billion in 2012 to \$51.2 billion in 2025, driven by rapidly rising imports. In the same manner, imports increased at a much faster pace than exports in the case of Japan and South Korea.

India's trade surplus has turned into a trade deficit in the case of Singapore after signing the trade agreement, exhibiting weakening export competitiveness.

India's export performance across its major Asian FTA partners such as ASEAN, Japan, South Korea and Singapore reveals an intriguing picture – its underperformance. India's share of the import basket among FTA partners has either stagnated or gradually eroded between 2012 to 2025, indicating a weakening in its export competitiveness post-FTAs. The most striking decline is in the case of ASEAN countries where India's share of ASEAN's import basket dropped from 3.42% to 1.71%, while in the case of Singapore, the import share declined from 2.27% to 1.71%. Similarly, India's share in South Korea's import basket has declined from 1.33% to 1.02% while its share in Japan's import basket shows mixed trends.

Collectively, these trends indicate that instead of leveraging trade agreements to integrate into regional production networks, India is stuck on the margins of manufacturing-led trade integration. The inability to capitalise on tariff preferences under the FTAs demonstrates that market access based on tariff elimination alone cannot compensate for weak domestic industrial capabilities, logistical inefficiencies, and infrastructure and operational constraints. India's trade challenges is not fundamentally about negotiating more FTAs but about strengthening domestic productive capabilities and associated impediments. Without adequate industrial transformation, FTAs risk becoming instruments that increase import penetration faster than export competitiveness, thereby widening asymmetrical trade outcomes and structural vulnerabilities.

Moreover, FTAs are often presented as GVC drivers, eliminating barriers to the development of shared production arrangements and industrial upgrading. It is interesting to note that India's GVC integration related to trade as a percentage of gross trade declined from 37.13% to 34.38%, indicating that India's integration in GVC networks has actually weakened. India's GVC trade as a share of gross trade with its FTA partners has declined in the case of South Korea, Japan, Indonesia, Thailand, Vietnam, and Cambodia. Only in the case of Malaysia, Singapore and Philippines, has it increased.

These trends demonstrate that India's FTAs have not translated into broad-based GVC integration. This evidence challenges the conventional assumption that FTAs automatically foster GVC integration through trade liberalisation. Moreover, it raises questions about the proposition that deeper commitments to market access and regulatory harmonisation are, in themselves, sufficient to promote GVC participation. The contemporary policy narrative surrounding India's new FTAs and their ability to integrate into GVCs raises some critical questions.

An assessment
The declining export shares and weakening GVC integration in the case of India's key FTA partners clearly highlight the limitations of considering FTAs primarily as instruments of market access. It is understandable that FTAs may enhance market access in certain product categories, but their ability to foster productive capabilities is still contested. This essentially means that India's FTA strategy needs to move beyond the standard argument of market access. It should focus on greater interaction with the broader industrial policy framework that emphasises technological upgrading, strategic investment, supply chain reorganisation, domestic value addition and domestic reforms. Without such policies, FTAs are likely to remain instruments of trade liberalisation that constrain policy flexibilities rather than drivers of industrial transformation.

Are the FTAs working?

The data for the charts were sourced from the International Trade Centre - Trade Map

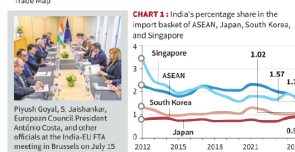


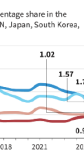
TABLE 1: India's trade with key FTA partners (in \$ billions)

Partner	Indicator	2012	2015	2018	2021	2024	2025
ASEAN	Export	32.3	25.35	36.25	40.68	42.71	35.96
	Import	42.74	41.47	57.51	64.04	81.87	87.19
	Trade balance	-10.44	-15.12	-21.26	-24.36	-39.16	-51.23
Japan	Export	6.4	4.5	4.8	6.1	5.8	6.1
	Import	12.4	9.6	12.6	14.4	15.9	20.9
	Trade balance	-5.95	-5.17	-7.83	-8.34	-13.06	-14.77
South Korea	Export	4.1	3.6	4.8	7.1	6	6
	Import	13.7	13.1	16.4	17.1	22.9	21.1
	Trade balance	-9.5	-9.48	-11.62	-9.97	-14.96	-15.12
Singapore	Export	13.6	7.3	10.5	10.7	15.7	10.7
	Import	7.8	7.4	14.5	18.2	20.5	23.7
	Trade balance	5.76	0.4	-3.99	-7.55	-4.87	-12.97

TABLE 2: India's global value chain-related trade as a share of gross trade with Asian FTA partners

	2012	2020	GVC integration (Increase/Decrease)
Indonesia	41.77	39.1	-11.67
Japan	41.07	26.44	-12.63
Malaysia	49.92	56.26	0.34
South Korea	63.18	41.58	-21.6
Thailand	48.32	47.65	-0.67
Singapore	66.87	65.54	2.67
Philippines	30.47	33.9	3.43
Vietnam	14.09	14.17	-2.12
Cambodia	47.43	44.34	-3.09

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The declining share of GVC-related trade in total trade for several major FTA partners shows that preferential market access has been inadequate to bolster India's participation in global production networks. The evidence challenges the conventional assumption that FTAs automatically foster GVC integration through trade liberalisation.

India's New Enthusiasm for Trade Diplomacy

India's external engagement has culminated in FTAs with the UAE, Australia, Oman, the U.K., the European Union and, most recently, New Zealand, with ongoing talks with the U.S., Gulf countries and Canada.

- ◆ This marks a **decisive shift towards bilateralism** as a vehicle of market access, value-chain integration and economic dynamism, with policymakers viewing FTAs as **indispensable instruments of economic statecraft**.
- ◆ However, this enthusiasm rests on **implicit assumptions** and dominant narratives; the argument that FTAs stimulate export growth and GVC integration warrants a **far more nuanced view**.

■ The Widening Deficit with Asian Partners

- ◆ India's FTA experience with Asian economies has **not been favourable**: trade with ASEAN, South Korea, Japan and Singapore has become increasingly import-driven.
- ◆ India's trade deficit with **ASEAN widened sharply from \$10.4 billion (2012) to \$51.2 billion (2025)**, driven by rapidly rising imports; imports also grew faster than exports with Japan and South Korea.
- ◆ India's **trade surplus turned into a deficit with Singapore** after signing the agreement, exhibiting weakening export competitiveness.
- ◆ India's **share of the import basket** among FTA partners has stagnated or eroded between 2012 and 2025, indicating weakening export competitiveness **post-FTAs**.

\$10.4 bn

India-ASEAN trade deficit, 2012

\$51.2 bn

India-ASEAN trade deficit, 2025

2012-25

Period of eroding import-basket share

■ An Assessment: The Real Challenge

- ◆ Instead of leveraging trade agreements to integrate into **regional production networks**, India is stuck on the **margins of manufacturing-led trade integration**.
- ◆ The inability to capitalise on tariff preferences shows that **market access via tariff elimination alone cannot compensate** for weak domestic industrial capabilities, logistical inefficiencies and infrastructure constraints.
- ◆ **India's trade challenge is not fundamentally about negotiating more FTAs** but about strengthening domestic productive capabilities.
- ◆ Without adequate industrial transformation, FTAs risk becoming instruments that increase **import penetration faster than export competitiveness** — widening asymmetrical trade outcomes and structural vulnerabilities.

◆ PRELIMS POINTERS ON FTAS

- ▶ **FTA**: An agreement reducing/eliminating tariffs & barriers on goods (and often services) between members.
- ▶ **GVC**: Global Value Chain — cross-border fragmentation of production stages.
- ▶ **Recent FTAs**: India-UAE CEPA, India-Australia ECTA, India-EFTA TEPA, India-UK CETA, India-EU, India-NZ.

WHY IN NEWS

The Lok Sabha passed the **Supreme Court (Number of Judges) Amendment Bill** — increasing the apex court's sanctioned strength from **34 to 38 judges** (including the CJI) — without any discussion, amid persistent Opposition protests. It replaces an ordinance promulgated earlier this year.

THE HINDU Bureau · New Delhi

Lok Sabha · Page 10, GS 2

Lok Sabha passes SC judges Bill without any discussion

Lower House clears legislation to increase strength of judges in the top court from 34 to 38 amid protests by the Opposition; Bankers' Books Evidence Bill, Indian Statistical Institute Bill introduced

The Hindu Bureau
NEW DELHI

The Lok Sabha on Monday passed a Bill to increase the sanctioned strength of judges in the Supreme Court without any discussion as persistent protests by Opposition members over the police action against protesting students at Jantar Mantar and the alleged *chadhawa chori* (theft of offerings) at the Ram Temple in Ayodhya continued to disrupt proceedings.

Two other Bills — the Bankers' Books Evidence Bill, 2026, and the Indian Statistical Institute Bill, 2026 — were introduced amid sloganeering in the afternoon.

Repeated adjournments
The House was adjourned repeatedly during the day as Opposition members trooped into the Well raising slogans and displaying placards, forcing Speaker Om Birla to suspend proceedings first till noon, then till 2 p.m., before adjourning the House for the day following the passage of the Supreme Court



The House saw repeated adjournments amid Opposition protests and sloganeering in the Monsoon Session. ANI

(Number of Judges) Amendment Bill, 2026.

At the Business Advisory Committee (BAC) meeting, sources told *The Hindu* that Congress deputy leader Gaurav Gogoi, chief whip Kodikunnil Suresh and Samajwadi Party MP Dharmendra Yadav demanded that Home Minister Amit Shah make a statement in the House on the police crackdown on protesters and that the government initiate a discussion on the alleged embezzlement of funds at the Ram Temple, during which Prime Minister Narendra Modi could intervene.

The BAC allotted three hours each for discussion on the Bankers' Books Evidence Bill and the Indian Statistical Institute Bill, and five hours for the Taxation and Other Laws (Amendment) Bill. However, there was no discussion on taking up the proposed amendments to the Foreign Contribution (Regulation) Act (FCRA).

Judges Bill

The Supreme Court (Number of Judges) Amendment Bill replaces an ordinance promulgated earlier this year to raise the sanctioned strength of the apex

court from 34 to 38 judges, including the Chief Justice of India. A statutory resolution moved by Opposition members seeking disapproval of the ordinance was rejected by voice vote.

Union Law Minister Arjun Ram Meghwal briefly introduced the Bill, but with protests continuing, it was passed by voice vote without debate. The government has argued that increasing the court's strength is essential to address mounting pendency.

Amid the disruptions, the House also introduced the Indian Statistical Institute Bill and the Bankers' Books Evidence Bill. The Indian Statistical Institute Bill seeks to repeal the 1959 Act governing the institution and incorporate it as a statutory body corporate with the President as its Visitor and a Board of Governors as its principal executive body.

The Bankers' Books Evidence Bill, introduced by Finance Minister Nirmala Sitharaman, seeks to replace the 1891 law by recognising electronic, digital, virtual and cloud-based banking records as admissible evidence in courts.

What Happened in Parliament

- ◆ The Bill was passed **without debate** as protests over police action against students at Jantar Mantar and the alleged *chadhawa chori* (theft of offerings) at the Ram Temple, Ayodhya, disrupted proceedings.
- ◆ It raises the sanctioned strength from **34 to 38 judges**, including the Chief Justice of India; a statutory resolution moved by the Opposition seeking disapproval of the ordinance was **rejected by voice vote**.
- ◆ Union Law Minister **Arjun Ram Meghwal** introduced the Bill; the government argued that increasing the court's strength is essential to address **mounting pendency**.

Constitutional Framework

- ◆ Under **Article 124(1)**, the Supreme Court originally consisted of a **Chief Justice and 7 other judges**; the Constitution explicitly empowers **Parliament to increase this number by law**.
- ◆ Unlike High Courts — where the **President can increase judge strength under Article 216** via executive orders based on workload — the Supreme Court's sanctioned strength can **only be changed through an Act of Parliament**.

MA

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Prelims Practice · MCQ Bank

10 QUESTIONS · ANSWER KEY & EXPLANATIONS FOLLOW

Q1.

- 1.

Q2. The **Green Credit Programme** is designed to advance the objectives of which mission?

- | | |
|--|----------------------------|
| (a) Mission LiFE (Lifestyle for Environment) | (b) National Solar Mission |
| (c) National Mission for a Green India | (d) Mission Innovation |

Q3. With reference to the '**Zero Trust**' security model, which statement is correct?

- | | |
|--|--|
| (a) It grants full network access to all internal users by default | (b) It follows the principle of 'never trust, always verify' for every user and device |
| (c) It is a legal doctrine governing data-localisation | (d) It applies only to physical, not digital, security |

Q4. Consider the following statements about the **Registration of Births and Deaths (Amendment) Bill, 2026**:

1. It amends Section 13(3) of the Registration of Births and Deaths Act, 1969.
 2. For registrations delayed beyond two years, a judicial magistrate must verify the event and pass an order.
 3. The 2023 amendment made birth certificates the principal proof of date and place of birth.
- | | |
|------------------|------------------|
| (a) 1 and 2 only | (b) 2 and 3 only |
| (c) 1 and 3 only | (d) 1, 2 and 3 |

Q5. The legally prescribed period for the timely registration of a birth or death under the Civil Registration System (CRS) is:

- | | |
|-------------|-------------|
| (a) 7 days | (b) 14 days |
| (c) 21 days | (d) 30 days |

Q6. Consider the following statements regarding India's **critical minerals** position:

1. China is the leading refiner in 19 of 20 strategic minerals with an average share of about 70%.
 2. India is import-dependent for lithium, cobalt and nickel.
 3. In 2024, China accounted for over 90% of rare-earth and graphite processing.
- | | |
|------------------|------------------|
| (a) 1 and 2 only | (b) 2 and 3 only |
| (c) 1 and 3 only | (d) 1, 2 and 3 |

Q7. The **National Critical Mineral Mission (NCMM)** targets include which of the following?

1. 1,200 domestic exploration projects by 2030-31
2. Production of at least 15 critical minerals
3. Acquisition of 50 overseas mining assets by Indian companies

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Q8. KABIL, which secured 15,703 hectares in Argentina’s Catamarca province for lithium exploration, is a joint venture of which entities?

(a) NALCO, HCL and MECL

(b) Coal India, NMDC and SAIL

(c) GAIL, ONGC and OIL

(d) IREL, MOIL and GSI

Q9. Consider the following statements about India's **Free Trade Agreement (FTA)** experience:

1. India's trade deficit with ASEAN widened from about \$10.4 billion in 2012 to \$51.2 billion in 2025.
2. India's trade surplus with Singapore turned into a deficit after signing the trade agreement.
3. India has signed FTAs with the UAE, Australia, the U.K. and the European Union.

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Q10. Consider the following statements regarding the **strength of judges in the Supreme Court**:

1. Under Article 124(1), the SC originally consisted of a Chief Justice and 7 other judges.
2. Parliament can increase the number of SC judges by law.
3. Like High Courts, the President can raise the SC's sanctioned strength by executive order.

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

ANSWER KEY & EXPLANATIONS

1-(a)

2-(a)

3-(b)

4-(d)

5-(c)

6-(d)

7-(d)

8-(a)

9-(d)

10-(a)

Q1 — (a): The GCP is a **voluntary** incentive mechanism notified under the Environment (Protection) Act, 1986 via the Green Credit Rules, 2023, administered by ICFRE, Dehradun. Statement 3 is wrong — it is voluntary, not mandatory.

Q2 — (a): The programme explicitly promotes the objectives of **Mission LiFE**, encouraging sustainable lifestyles through community behavioural change.

Q3 — (b): Zero Trust assumes no user or device is trustworthy by default and requires continuous verification — ‘never trust, always verify’. Malicious autonomous AI agents threaten to undermine this legacy.

Q4 — (d): All three are correct. The Bill amends Section 13(3) of the 1969 Act; delays beyond two years now need a **judicial magistrate**; and the 2023 amendment made birth certificates near-conclusive proof of birth.

Q5 — (c): Births and deaths must be registered within **21 days** of occurrence for timely (non-delayed) registration.

Q6 — (d): All three are correct, capturing China’s dominance in refining (19/20 minerals, ~70%), India’s import dependence, and China’s >90% share of rare-earth and graphite processing in 2024.

Q7 — (d): The **NCMM** targets 1,200 exploration projects by 2030-31, production of at least 15 critical minerals, and acquisition of 50 overseas mining assets — all three are correct.

Q8 — (a): KABIL (Khanij Bidesh India Limited) is a JV of **NALCO, Hindustan Copper Ltd (HCL) and MECL**, set up to source strategic minerals from overseas.

Q9 — (d): All three statements are correct — the widening ASEAN deficit, the Singapore surplus-to-deficit shift, and India’s recent FTAs with the UAE, Australia, U.K. and EU.

Q10 — (a): Statements 1 and 2 are correct. Statement 3 is wrong: unlike High Courts (Article 216), the SC’s strength can be changed **only by an Act of Parliament**, not by executive order.