

AI and a gathering storm of unchecked power

Prelims: General Studies Paper - 1
Current events of national and international importance

Mains: General Studies - 3
Awareness in the fields of IT, Space, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.

1.Context

- Palantir Technologies shared ideas from CEO Alexander C. Karp's book *The Technological Republic*, emphasizing the role of AI in power and warfare
- It **raises concern that the key issue is not whether AI will be used in weapons**, but who controls it and for what purpose.
- AI is increasingly influencing society, economy, and warfare**, shaping global interactions and conflicts.
- Reports suggest **Palantir's AI system (Maven Smart System) was used in U.S. military operations in Iran**, including selecting targets, raising serious ethical concerns.

2.AI Governance Crisis: Rising Risks and Weak Regulation

- AI dystopian fears are now becoming reality**, raising concern.
- Lack of regulation is alarming**, worrying even technological experts more than governments.
- OpenAI says AI is advancing faster than society** can handle.
- OpenAI **calls for strong government policies to manage risks** and societal change.
- Anthropic (AI safety-focused company) uses "Claude's Constitution"** for ethical AI.
- Self-regulation is unreliable**, as firms like Palantir Technologies may ignore limits.

3.AI: From Warfare to Surveillance and the Crisis of Accountability

- Advanced models like Anthropic's Claude Mythos raise serious concerns** due to their powerful hacking abilities.
- Palantir Technologies's software is used by U.S. Immigration and Customs Enforcement**, enabling large-scale tracking and profiling.
- AI systems are **shown to be racially biased and rely on data collected** without proper regard for privacy.
- AI impacts jobs, climate, creativity, and raises concerns over copyright use** of human-generated content.
- Trusting private companies over governments** for privacy protection weakens accountability.

4.Global Regulation of AI: The Need for Collective Action and Political Will

- If the U.S. and the West fail to regulate AI, **other countries must step up** instead of remaining passive.
- India's 2025 AI Governance Guidelines** acknowledge risks but avoid strong legal or legislative action.
- Luiz Inácio Lula da Silva (President of Brazil)** calls for strong AI regulation.
- Regulations like the European Union Artificial Intelligence Act, Brazil's proposals, and India's guidelines show that solutions already exist.
- Governments must make these frameworks binding and cooperate globally.

Keeping India's carbon money at home

Prelims: General Studies Paper - 1
Current events of national and international importance

Mains: General Studies - 3
Conservation, environmental pollution and degradation, environmental impact assessment.

1.Context

- The **European Union introduced the Carbon Border Adjustment Mechanism (CBAM) on January 1, 2026**, to impose carbon costs on imports.
- **Indian exporters face full CBAM charges without similar financial or policy support**, putting them at a disadvantage
- This **situation may violate the spirit of General Agreement on Tariffs and Trade (GATT) Article III**, which prohibits using internal charges to unfairly protect domestic industries.

The General Agreement on Tariffs and Trade (GATT) Article III requires that imported goods be treated no less favourably than similar domestic products in terms of internal taxes and regulations

2.CBAM, Climate Justice and India–EU FTA Concerns

- The India–EU Free Trade Agreement does not exempt India from CBAM, but allows discussions and equal treatment.
- **CBAM raises fairness issues, as developing countries bear the burden** while Europe keeps the revenue.
- It **affects sovereignty**, as countries like India have less control over rules.
- India has its own system, **Carbon Credit Trading Scheme (CCTS)**, to price carbon.
- However, **CBAM allows adjustment for CCTS to avoid double taxation, but concerns remain over transparency, differing methods**, and full recognition.

India’s Carbon Credit Trading Scheme (CCTS) was launched in 2023 by the Ministry of Power to establish a domestic carbon market. It operates on a cap-and-trade mechanism, where industries receive emission limits and can trade carbon credits if they reduce emissions below their targets.

3.India’s Counter Strategy: IBAM

- India **can introduce an India Border Adjustment Mechanism (IBAM) to impose a carbon charge** on exports covered under CBAM.
- This **would shift payments from an EU levy to a domestic system**, keeping revenue within India.

- Proper coordination **will prevent double taxation**.
- If implemented carefully, the total carbon cost for Indian exporters will remain capped at the CBAM level.

4.Way Forward: Making IBAM a Constructive Offer

- **Ensure IBAM revenues stay in India** and are not transferred abroad.
- **Create a dedicated green fund for verified projects** for clean energy, green steel and hydrogen.
- **Follow strict MRV (Measurable, Reportable, Verifiable) standards** with independent audits

MRV (Measurable, Reportable, Verifiable) framework that **ensures greenhouse gas emissions, mitigation actions, and climate finance are properly tracked**. It means they are accurately measured, transparently reported, and independently verified.

- **Push for EU recognition of India’s carbon pricing** as a valid offset to avoid double taxation.
- **Engage through institutional dialogue to align IBAM** with global carbon rules.
- **Maintain export competitiveness** while supporting India’s own green transition.

How dual-use satellites are blurring the lines of modern space war The Outer

Prelims: General Studies Paper - 1
Current events of national and international importance

Mains: General Studies - 3
Science and Technology- developments and their applications and effects in everyday life.

1. Context: Rise of Silent Space Warfare

- Modern warfare has shifted from **kinetic anti-satellite attacks** to **cyber-enabled disruption**, targeting the **systemic paralysis of satellite-dependent societies** rather than physical destruction.
- During the Russia–Ukraine War (2022 invasion), a **cyberattack on Viasat’s KA-SAT network** disrupted **communications across Europe in the initial hours**, highlighting its strategic impact.
- **GPS spoofing incidents** have misled **civilian aircraft and maritime vessels**, triggering **false terrain alerts and navigation failures**, thereby weaponising safety systems.

- Modern orbital conflict is marked by **signal loss, deliberate misdirection, and sudden system failures**, rather than visible destruction.
- Over **60% of global satellite services** support **GPS, telecom, banking, disaster management, and governance**, increasing systemic dependence.

2. Nature of Threat: Architecture of Cyber Disruption

- Space systems are inherently vulnerable as **cyber interference leaves no physical trace** but causes **severe functional disruption**.
- Cyber warfare operates through **jamming, spoofing, and ground station hacking**, forming the core toolkit of disruption.
- **Jamming blocks signals** and **spoofing injects false data**, disrupting **communication, navigation, and aviation systems**, and even **weaponising safety logic**.
- **Ground station hacking enables unauthorised control over satellites**, allowing manipulation or disablement.
- Such disruptions can trigger **cascading failures across financial systems, energy grids, communications, and governance networks on Earth**.

3. Legal Blindspots and Theoretical Challenges

- Prussian military theorist Carl von Clausewitz's idea that war is defined by its **effects** implies that **cyber operations disabling satellites can qualify as use of force**.
- The United Nations Charter under **Article 2(4)** prohibits **use of force**, but **does not explicitly cover cyber operations in space**.
- By **2026, several states accept that functional disablement of satellites can constitute use of force**, even without **visible destruction**.
- This has led to an **effects-based test**, where **loss of functionality becomes the new "shattered glass"**.
- However, an **attribution gap persists**, as the International Law Commission requires **high evidentiary certainty** for state responsibility.
- **Proxy networks and spoofed identities enable anonymity**, creating a **structural tension where consequences are recognised but perpetrators remain untraceable**.

4. Collapse of Distinction and Persistent Grey-Zone Conflict

- Modern satellites are **dual-use**, as **GPS, broadband, and financial systems support military intelligence and drone targeting**.
- The **Starlink precedent** shows how **commercial constellations integrated into military kill chains become grey-zone targets**.
- Cyber operations enable **deniable, low-intensity, continuous disruptions**, creating **persistent grey-zone conflict that undermines state legitimacy without crossing war thresholds**.
- India's **2026 CERT-In and SIA-India guidelines** promote **secure-by-design**, but **enforcement and attribution gaps remain**, and **Global South dependence on foreign constellations creates orbital vulnerability capable of paralysing governance**.
- **Way Forward:** States must adopt **binding norms recognising cyber operations in space as use of force, strengthen real-time attribution, and enforce secure-by-design standards through global cooperation**.

Rationalising Iran's nuclear capability

Prelims: General Studies Paper - 1

Current events of national and international importance

Mains: General Studies - 2

Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora.

1. Context: Iran's Nuclear Dilemma and Global Pressure

- The U.S. under Donald Trump has pushed Iran to abandon its **nuclear programme**, while Iran has vowed to **protect its nuclear stockpile**.
- Ayatollah Ali Khamenei considers nuclear weapons **'haram' (forbidden)**, creating a contradiction between **ideology and strategic needs**.
- Iran reconciles this by maintaining a **civilian nuclear programme with latent military capability**, enabling **deterrence without overt weaponisation**.
- This **dual stance** allows Iran to **avoid sanctions while retaining strategic leverage** through ambiguity.

2. NPT(Non-Proliferation Treaty) Framework and Structural Loopholes

- The Treaty on the Non-Proliferation of Nuclear Weapons discourages nuclear weapons while **permitting civilian nuclear capability**, including **enrichment and reprocessing**.
- Nuclear technologies used for **energy and medicine** also create potential for **weapon development** due to their **dual-use nature**.
- The International Atomic Energy Agency monitors **enrichment and reprocessing activities** to prevent **diversion to military use**.
- The NPT focuses on **preventing weaponisation rather than capability**, thereby creating a **grey zone**.
- Countries rely on **export controls, diplomacy, and sanctions** to manage **proliferation risks**.

3. Threshold States, Strategic Ambiguity and Risks

- A **threshold state** develops **full nuclear capability but stops short of building weapons**, thereby maintaining **strategic ambiguity**.
- Iran is considered a **threshold state**, similar to North Korea in its earlier phase, with **latent capability and short breakout time**.
- A **breakout strategy** allows rapid movement from **enrichment to weapon deployment**, making detection difficult.
- Uncertainty about **intent** creates **mistrust and instability** in international relations.
- This leads to a **nuclear cascade effect**, where neighbouring states pursue **nuclear capability**, forming regional clusters such as **South Asia and West Asia**.
- Responses often come **too late, close to weaponisation**, increasing the **risk of escalation**.

4. Iran's Capability, Politics and Limited Regulatory Options

- Iran possesses **around 500 kg of uranium enriched to 60%** and about **11 tonnes overall (2%-60%)**, which is close to **weapons-grade (90%)**.
- The shift from **60% to 90% enrichment is rapid**, making Iran **effectively nuclear-capable** with a **short breakout time**.

- Iran justifies its programme as **peaceful**, citing **downblending** and the NPT's "**inalienable right**" to **nuclear technology**.
- Iran complied with the Joint Comprehensive Plan of Action until the U.S. withdrew in 2018, after which **enrichment levels increased**.
- The U.S., EU, and UN imposed **sanctions**, while covert actions such as the **Stuxnet cyberattack** and **targeted assassinations** have been used.
- The concept of **Maslahat-e-Nizam** allows **flexibility in religious rulings**, meaning fatwas can change if **national survival is threatened**.
- The Iran-Iraq War and Iraq's use of **chemical weapons** shaped Iran's emphasis on **self-reliance and deterrence**.
- Iran remains **technically compliant yet strategically ambiguous**, limiting **effective global regulatory responses**.
- A **strengthened global non-proliferation regime**, including clearer rules on **threshold states, real-time IAEA verification, and stricter enforcement of enrichment limits**, is needed along with **revival of diplomatic frameworks and confidence-building measures** to reduce strategic ambiguity and escalation risks.

KEYWORDS

CARICOM (Caribbean Community)

- CARICOM (Caribbean Community) is the **oldest surviving regional integration movement in the developing world, established in 1973 through the Treaty of Chaguaramas**.
- It was **originally formed as the Caribbean Community and Common Market** to promote unity among Caribbean nations.
- Its **main objectives include economic integration, equitable sharing of benefits, and coordination of foreign policy** among member states.
- It has **15 members; Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, and Trinidad and Tobago**.

- The **chairmanship of the organization rotates every six months** among the heads of member states.
- In 2007, CARICOM established the Caribbean Court of Justice, which acts as the final court of appeal and resolves regional trade disputes.

International Day of Yoga (IDY)

- International Day of Yoga (IDY) is **observed annually on June 21 to promote physical, mental, and spiritual well-being through yoga.**
- It was **proposed by Narendra Modi at the 69th United Nations General Assembly in 2014.**
- The **UN adopted the resolution with a record 177 co-sponsoring countries**, and the first celebration was held in 2015.
- **June 21st, the Summer Solstice, was chosen as it is the longest day in the Northern Hemisphere**, symbolizing harmony and vitality.
- In India, **the Ministry of Ayush serves as the nodal body for organizing events.**
- Yoga is also recognized globally as India's soft power, with UNESCO inscribing it as an Intangible Cultural Heritage in 2016.

Places in News

Lipulekh Pass

- Lipulekh Pass is a **high-altitude mountain pass located in Uttarakhand near the India–Nepal–China tri-junction.**
- It **connects India with the Tibet Autonomous Region of China** and serves as an important trade route.
- The pass is a key route for the Kailash Mansarovar Yatra to Mount Kailash.
- It lies close to **the disputed Lipulekh–Kalapani–Limpiyadhura region between India and Nepal.**
- **Kalapani is a strategically important area currently administered by India** but claimed by Nepal.
- The **dispute over Lipulekh-Limpiyadhura-Kalapani arises due to different interpretations of the Kali River's source under the Treaty of Sugauli** (1816 peace treaty between British East India Company and Nepal that defined their boundary along the Kali River).
- **India considers the river's origin near Kalapani**, thereby placing the disputed areas within its territory.
- Nepal, however, claims the river originates at Limpiyadhura, which would shift the boundary westward and include Lipulekh and Kalapani within Nepal.

