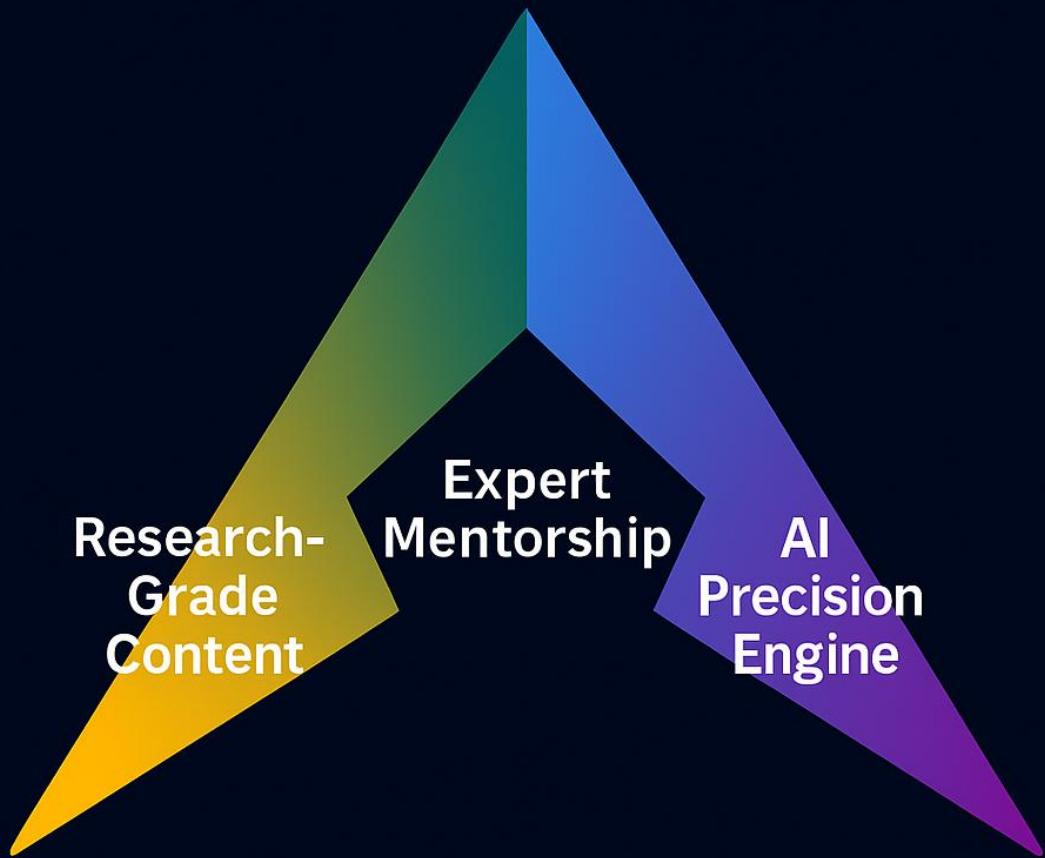


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GS Paper II: Polity

1. Artificial Intelligence in the Indian Judiciary

a. Introduction

The Indian judicial system has long been burdened by structural challenges such as massive case pendency, procedural delays, language diversity, and an overwhelming reliance on paper-based records. These constraints weaken public confidence and dilute the constitutional promise of timely justice. In response, Indian courts have begun integrating Artificial Intelligence (AI)-based tools as part of a broader technology-driven reform agenda.

Crucially, Artificial Intelligence is not used to decide cases or replace judges. Its role is strictly assistive—supporting judges, lawyers, and court staff in managing information, streamlining procedures, and reducing avoidable delays, with human supervision remaining central at every stage.

b. Constitutional and Institutional Context

i. Constitutional Basis

The use of technology in judicial reforms is firmly anchored in constitutional values:

Article 21 – Right to Speedy Justice

- Judicial interpretation has expanded Article 21 to include the right to timely justice as an essential component of life and personal liberty.
- Procedural delays directly infringe this right, making efficiency-enhancing tools constitutionally relevant.

Article 39A – Access to Justice

- Mandates the State to ensure equal access to justice, especially for disadvantaged sections.
- Language barriers, cost, and complexity are key obstacles that technology can help reduce.

ii. Institutional Framework

AI-enabled reforms complement existing judicial digital initiatives:

E-Courts Mission Mode Project

- Digitisation of court records, e-filing, and virtual hearings.
- Provides the technological backbone for AI deployment.

National Judicial Data Grid (NJDG)



- Real-time data on pendency and disposal of cases.
- Enables evidence-based policy decisions and court management.

c. Rationale for Using Artificial Intelligence in Courts

Judicial delays in India arise less from deficiencies in substantive law and more from procedural inefficiencies:

i. Time-consuming manual processes

- Manual recording of proceedings consumes valuable court time.
- Preparation and translation of judgments often take weeks.

ii. Procedural errors at filing stage

- Missing documents or technical defects lead to repeated adjournments.

iii. Information overload on judges

- Judges handle enormous volumes of case files and precedents.
- This reduces time available for core judicial reasoning.

Artificial Intelligence is particularly well suited to address these process-related bottlenecks by automating repetitive tasks, thereby freeing human actors to focus on adjudication.

d. Key Applications of Artificial Intelligence in the Judiciary

i. Transcription of Court Proceedings

Technology Enabled ReSolution (TERS)

- Converts oral arguments and witness testimonies into written text, often in real time.
- Supports multiple accents and regional languages.

Benefits

- Saves weeks of manual transcription time.
- Improves accuracy in fast-paced hearings, including Constitution Bench matters.

Safeguard

- Mandatory human verification before final adoption.

ii. Translation of Judgments and Orders

Supreme Court Translation System

- Enables translation of judgments into multiple Indian languages.

Significance

- Enhances accessibility for litigants unfamiliar with English.
- Promotes linguistic equality and transparency in justice delivery.

iii. Automated Scrutiny at Filing Stage

AI-based filing scrutiny systems

- Examine pleadings, vakalatnamas, and annexures.
- Identify missing documents or procedural defects early.

Impact

- Prevents minor errors from causing prolonged delays later.

iv. Case Management and Legal Research Support

Workflow management

- Tracking cases across benches through unified digital interfaces.
- Efficient retrieval of case histories and documents.

Legal research assistance

- Scanning large volumes of precedents and statutes.
- Preparing preliminary drafts for judicial consideration.

Core principle

- Final reasoning and decision remain entirely with the judge, preserving judicial independence.

Thus, AI acts as a support system rather than a decision-maker.

e. Ethical Safeguards and Governance Framework

The adoption of Artificial Intelligence in courts is guided by clear ethical principles:

i. Human Oversight

- All AI outputs are reviewed and validated by judges or trained court staff.

ii. Data Sovereignty

- Systems operate within judicial infrastructure.
- No dependence on external commercial platforms.

iii. Assistive, Not Adjudicatory Role

- AI supports procedures but does not decide outcomes.

iv. Gradual and Tested Deployment

- Tools are tested in live court environments before scaling.

f. Challenges in Implementation

Despite its promise, AI in the judiciary faces several constraints:

i. Complexity of legal language

- Legal reasoning is context-specific and nuanced.
- Errors can have serious consequences.

ii. Infrastructure gaps

- District and subordinate courts face unreliable electricity and connectivity.

iii. High costs

- Specialised legal AI systems require significant investment.

iv. Trust deficit

- Judges and lawyers may initially resist technological intervention in judicial processes.

g. Way Forward

To maximise benefits while minimising risks:

i. Strengthening digital infrastructure

- Priority to district and subordinate courts.

ii. Capacity building

- Continuous training for judges and court staff.

iii. National guidelines on judicial AI

- Standardised ethical and procedural norms.

iv. Inclusivity and transparency

- Expansion to all Scheduled Languages.
- Regular audits to build public trust.

Conclusion

Artificial Intelligence in the Indian judiciary functions primarily as a procedural reform mechanism aimed at improving efficiency, accuracy, and access to justice. By streamlining transcription, translation, filing scrutiny, and document management, it reduces systemic delays while preserving human control over decision-making. When guided by constitutional values and ethical safeguards, AI strengthens the judicial system without compromising its independence or legitimacy.

GS Paper II: Current Affairs

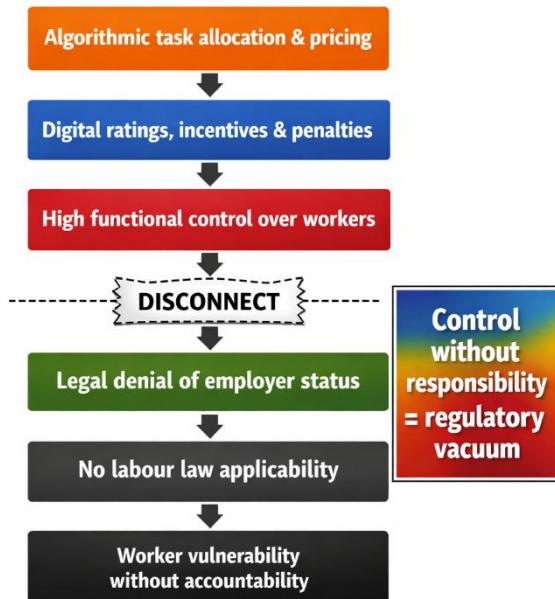
2. Gig Economy in India: Rights of Workers and Responsibility of Platforms

a. Introduction

The gig economy represents a rapidly expanding form of work organisation in which digital platforms connect consumers with workers for short-term, task-based services. Activities such as food delivery, ride-hailing, logistics, and home services have become integral to urban economic life in India. This expansion has been driven by high unemployment, the dominance of informal labour, and rising demand for low-cost, time-efficient services.

However, beneath the narrative of flexibility and innovation lies a deeper structural tension. Gig work is largely organised around precarious labour arrangements where workers bear economic risks without corresponding rights or protections. This contradiction between technological efficiency and labour vulnerability lies at the heart of debates on labour reforms, social justice, and inclusive growth.

Control–Responsibility Mismatch in the Gig Economy



b. Conceptual Understanding of Gig Work

i. Definition and Nature

Gig workers are individuals who perform on-demand, task-based work mediated by digital platforms rather than traditional employers. They are typically classified as independent contractors, partners, or self-employed persons instead of employees.

ii. Control-Responsibility Mismatch

Algorithmic management

- Allocation of tasks, wage determination, incentives, penalties, and even continuation on the platform are governed by algorithms.
- Digital ratings and automated decisions replace human supervisors.

Legal positioning by platforms

- Platforms deny an employer-employee relationship.
- Responsibility for labour protection is avoided.

Core issue

- High functional control exists without legal accountability.
- Workers are excluded from the protective framework of labour laws.

c. Scale and Economic Significance in India

The gig economy has emerged as one of the fastest-growing sources of employment in India:

i. Employment generation

- Engages millions of workers.
- Projected to expand significantly in the coming decade.

ii. Socio-economic profile

- Major source of income for migrants, youth, and informal workers.
- Acts as an entry point into income generation in the absence of formal jobs.

iii. Structural role

- Absorbs surplus labour in an economy with limited formal job creation.
- Strengthens service-sector efficiency and urban consumption.

d. Structural Sources of Precarity in Gig Work

i. Denial of Employment Relationship

Platform control

- Prices, access to work, and performance monitoring are platform-driven.

Legal denial

- Platforms claim intermediary status.
- Most labour laws become inapplicable.

ii. Transfer of Economic Risk

Income insecurity

- No guaranteed minimum earnings.

- Income fluctuates with demand and algorithmic changes.

Cost burden on workers

- Workers finance vehicles, fuel, smartphones, and data.
- Health and accident risks are personally borne.

Asymmetric gains

- Platforms gain scale, valuations, and investor confidence.
- Consumers enjoy low-cost convenience.
- Downside risks are concentrated on labour.

iii. Algorithmic Control and Opacity

Opaque decision-making

- Incentives and penalties are automated and non-transparent.

Lack of accountability

- Decisions are difficult to challenge.
- Effective grievance redressal is often absent.

iv. Absence of Basic Labour Protections

No statutory safeguards

- No limits on working hours.
- No paid leave, sickness benefits, or job security.

Digitalised informality

- Reproduces casual labour insecurity.
- Introduces continuous digital surveillance and discipline.

e. Legal and Policy Position in India

i. Labour Codes, 2020

Code on Social Security

- Recognises gig and platform workers as a separate category.
- Mandates platform contributions to a social security fund.

Key limitation

- No enforceable rights related to wages, working conditions, or job security.

ii. Exclusion from Other Labour Codes

Wage and working condition codes

- Explicitly exclude gig workers.

Resulting paradox

- Workers are recognised in principle.
- Remain largely unprotected in practice.

f. Regulatory and Governance Challenges

i. Hybrid nature of gig work

- Lies between employment and self-employment.
- Difficult to fit into traditional labour law categories.

ii. Growth versus protection dilemma

- Fear that regulation may raise costs for platforms.
- Concerns about slowing job creation.

iii. Fragmented policy responses

- State-level initiatives focus mainly on social security.
- Core labour rights remain unaddressed.

g. Comparative and Global Perspective

International experience shows that regulation is both feasible and growth-compatible:

i. Reclassification and intermediate categories

- Recognition of “dependent contractors” in some countries.

ii. Minimum standards

- Wage floors, social security, and accident insurance.

iii. Key insight

- Platform-based growth does not require erosion of labour protections.

h. Ethical and Social Dimensions

The gig economy raises fundamental ethical questions:

i. Convenience versus dignity

- Urban consumers benefit from speed and affordability.
- Often unwilling to pay costs associated with fair labour standards.

ii. Governance challenge

- Ensuring technological progress aligns with social justice.
- Preventing efficiency from being built on persistent insecurity.

i. Way Forward: Towards a Balanced Regulatory Framework

India does not face a binary choice between rigid regulation and complete deregulation:

i. Legal recognition of workers

- Gig workers to be recognised as workers.
- Platforms to be treated as functional employers for specific obligations.

ii. Minimum protections

- Social security and accident insurance.
- Income floors without eliminating flexibility.

iii. Algorithmic accountability

- Transparency in decision-making.

- Accessible grievance redressal mechanisms.
- Regular audits.

iv. Institutional dialogue

- Tripartite engagement between State, platforms, and worker representatives.

Conclusion

The gig economy has not created labour precarity in India; it has digitised and expanded an already informal labour structure. As platform-based work becomes a central pillar of employment, treating labour protection as optional is neither sustainable nor ethically defensible. Long-term inclusive growth requires balancing flexibility with fairness and innovation with responsibility. Ultimately, the dignity of labour must remain the foundation of India's digital economy.

GS Paper III: Economics

3. GSDP as a Criterion for Central-State Tax Transfers

a. Introduction

One of the enduring challenges of Indian federalism lies in determining how the Union should share its tax revenues with the States in a manner that is fair, efficient, and growth-oriented. This constitutional responsibility rests with the Finance Commission, which periodically recommends both the share of central taxes to be devolved and the criteria for their distribution among States.

Over time, concerns have emerged that the existing transfer framework places disproportionate emphasis on redistribution while insufficiently recognising the economic contribution of States that generate a large share of national income. In this context, Gross State Domestic Product (GSDP) has gained prominence as a criterion that can align tax devolution more closely with actual economic activity, without abandoning the equity principles that underpin Indian federalism.

b. Understanding GSDP and Its Fiscal Relevance

i. Meaning of GSDP

Gross State Domestic Product measures the total value of goods and services produced within a State during a given period. It reflects:

Economic size and dynamism

- Scale of production and services.
- Level of income generation.

Potential tax base

- Breadth of consumption and income activities.
- Capacity to generate tax revenues.

ii. Link with Tax Generation

Since taxes arise from production, consumption, and income:

GSDP as a proxy

- Captures underlying economic processes that generate taxes.
- More representative than raw tax collection figures.

National contribution

- Indicates a State's real contribution to national income.

Thus, GSDP has strong conceptual relevance for fiscal devolution.



c. Present Framework of Central-State Transfers

i. Tax Devolution

Constitutional transfers

- A fixed proportion of gross central taxes is shared with States.

Fifteenth Finance Commission (FC-XV)

- Recommended 41% devolution to States.
- Distribution based on multiple criteria:
 - o Income distance
 - o Population
 - o Area
 - o Forest cover
 - o Demographic performance
 - o Tax effort

ii. Non-Devolution Transfers

Grants-in-aid and Centrally Sponsored Schemes (CSS)

- Often conditional in nature.
- Increasing share in total transfers.

Federal concern

- Constrains fiscal autonomy of States.
- Shifts balance away from cooperative federalism.

d. Core Issue: Tax Collection versus Economic Contribution

A major limitation of using tax collection data lies in where taxes are recorded, not where value is created.

i. Distortions in direct taxes

- Corporate taxes attributed to headquarters location.
- Production may occur in a different State.

ii. Sectoral examples

- Manufacturing, mining, and plantations generate value across regions.
- Profits often taxed in a single jurisdiction.

iii. Resulting mismatch

- State-wise tax collections do not reflect true economic geography.
- Contribution to national income is under-represented for producing States.

e. Why GSDP Provides a Better Measure

i. Reflects Real Economic Activity

Location-based measurement

- Captures where goods and services are actually produced.

Uniform tax administration assumption

- If tax-to-GSDP ratios are broadly similar,
- GSDP share approximates share in national tax base.

ii. Relevance in the GST Era

Destination-based taxation

- GST aligns taxes with consumption patterns.
- Consumption and income are closely linked to GSDP.

Empirical evidence

- Strong correlation between State GSDP and tax collections.
- GSDP often outperforms complex Finance Commission formulas in reflecting contribution.

f. Balancing Equity and Efficiency

i. Equity Orientation of Current System

Focus on redistribution

- Income distance and population dominate weights.
- Larger transfers to poorer States.

Positive outcome

- Supports social justice and minimum fiscal capacity.

ii. Efficiency Gains from GSDP

Rewarding contribution

- Incentivises States to expand output and tax base.

Middle path

- GSDP need not replace equity criteria.
- Can complement redistribution to balance incentives and fairness.

g. Distributional Implications

i. Likely gainers

States with large, diversified economies:

- Maharashtra
- Gujarat
- Karnataka
- Tamil Nadu

ii. Possible relative losers

- States with lower economic output but higher current transfers.

iii. Expected impact

- Changes likely to be moderate, not disruptive.
- Corrects distortions rather than creating new imbalances.

h. Federalism and Political Economy Considerations

i. Existing Federal Strains

Rising cesses and surcharges

- Not shareable with States.

Expansion of CSS

- Increases central control over spending.

ii. Role of GSDP in Reducing Friction

Transparency and credibility

- Clear link between contribution and transfers.

Cooperative federalism

- Addresses perceptions of under-rewarding productive States.
- Aligns fiscal federalism with national income generation.

i. Way Forward

i. Rebalancing devolution criteria

- Increase weight of GSDP.
- Retain equity-oriented indicators.

ii. Data and measurement improvements

- Better tracking of inter-State economic activity.

iii. Strengthening State autonomy

- Rationalise non-shareable cesses.
- Improve predictability of transfers.

Conclusion

Gross State Domestic Product is not a perfect indicator, but it remains a clear, measurable, and economically sound proxy for assessing States' contribution to national income and central tax revenues. Granting it greater weight in tax devolution can restore balance between equity and efficiency, ensuring that India's fiscal federalism supports both inclusive development and sustained economic dynamism.

GS Paper III: Science and Technology

4. ISRO's Next Phase: From Spectacular Missions to Sustained Space Power

a. Introduction

India's space programme, led by the Indian Space Research Organisation (ISRO), has clearly moved beyond its formative and experimental phase. Over the past decade, ISRO has demonstrated technological credibility, operational reliability, and global standing through a series of successful launch missions, planetary explorations, and international collaborations. These achievements have firmly established India as a credible spacefaring nation.

The central question today is no longer whether ISRO can execute complex missions. Instead, the challenge lies in transforming episodic success into sustained space power—the capacity to undertake ambitious missions regularly, predictably, and at scale. This transition requires not just technological excellence, but strong institutions, clear laws, effective governance, and a mature industrial ecosystem.

b. Why Expectations from ISRO Have Fundamentally Changed

i. Technological and Operational Maturity

Recent achievements have significantly raised expectations:

Reliable launch capability

- Consistent performance of PSLV and GSLV has made access to orbit routine rather than experimental.

Scientific and exploratory success

- Chandrayaan-3 demonstrated indigenous lunar soft-landing capability.
- Aditya-L1 positioned India as a contributor to global solar science.

International credibility

- Missions such as NASA-ISRO Synthetic Aperture Radar (NISAR) reflect co-development of advanced technologies.

ii. Shift in Evaluation Standards

These accomplishments collectively alter the benchmark:

From one-off success to regular delivery

- ISRO is now judged by reliability and frequency, not isolated excellence.

From experimentation to operational confidence

- Missions are expected to succeed as a matter of routine.

c. A New Operational Reality: Parallel High-Risk Missions

ISRO is now preparing multiple complex missions simultaneously:

i. Human spaceflight

- Gaganyaan programme involves life-support systems, crew safety, and recovery missions.

ii. Advanced exploration

- Chandrayaan-4 aims at more sophisticated lunar objectives.

iii. Launch capability expansion

- Development of the Next-Generation Launch Vehicle (NGLV).

This marks a departure from earlier phases where missions were staggered over time. Managing parallel, high-risk programmes demands higher launch cadence, faster project cycles, and strong organisational resilience.



d. Capacity Constraints and the Risk of Bottlenecks

i. Concentration of Roles within ISRO

ISRO continues to function as:

- Designer
- System integrator
- Testing authority
- Launch operator

While effective in a low-volume regime, this model creates stress when mission density increases.

ii. Systemic Risks

Single-point failure risk

- Delays or failures in one mission can cascade into others.

Reliability challenge

- Human spaceflight and heavy-lift vehicles require reliability built into systems, not achieved through ad-hoc problem-solving.

Without redistribution of responsibilities, ISRO risks becoming a bottleneck rather than a catalyst.

e. Incomplete Governance and Legal Architecture

i. Post-2020 Institutional Reforms

Reforms attempted functional separation:

- **ISRO** – research and advanced technology development
- **IN-SPACe** – regulator and promoter of non-governmental space activities
- **NewSpace India Limited (NSIL)** – commercial arm

ii. Persisting Gaps

Absence of a national space law

- No clear framework for liability, insurance, or dispute resolution.

Institutional overlap in practice

- ISRO continues to be drawn into operational and regulatory roles due to weak alternative authorities.

f. Space Competitiveness as an Ecosystem Challenge

Modern space power is no longer defined solely by engineering skill:

i. Global benchmarks

- High-frequency launches
- Reusable launch systems
- Rapid satellite manufacturing

ii. Indian constraints

- Limited industrial depth
- Dependence on ISRO-owned infrastructure
- High capital requirements
- Volatile private investment in space hardware

Space capability today is an ecosystem outcome, shaped by manufacturing scale, finance, regulation, and supply chains—not just mission success.

g. Strategic Importance of the Next-Generation Launch Vehicle

i. Symbol of Long-Term Ambition

The NGLV represents India's future space trajectory:

Technical objectives

- ~30-tonne payload capacity to Low Earth Orbit
- Partial reusability to reduce costs

Strategic utility

- Supports commercial launches and strategic missions.

ii. Beyond Engineering

Success depends on:

- Advanced manufacturing capacity
- Resilient supply chains
- Extensive testing infrastructure
- Sustained financial commitment

Without institutional and industrial backing, technical designs alone cannot mature into operational systems.

h. Why a National Space Law Is Indispensable

A comprehensive national space law would:

i. Clarify institutional roles

- Clearly define responsibilities of ISRO, IN-SPACe, and NSIL.

ii. Address liability and insurance

- Reduce uncertainty for both public and private actors.

iii. Provide regulatory certainty

- Encourage long-term private investment.
- Ensure policy continuity across political cycles.

Space law is therefore foundational to building a stable, scalable, and accountable space ecosystem.

i. Transition from Heroic Missions to Routine Capability

India's space programme is undergoing a structural shift:

i. Earlier phase

- Mission-centric
- ISRO-dominated execution
- Low launch frequency

ii. Next phase

- Continuous mission pipeline
- Ecosystem-driven operations
- Predictable execution
- Higher launch cadence using reusable systems

This requires redefining ISRO's role as a technology anchor, while industry undertakes routine manufacturing and operations under robust regulation.

j. Way Forward

- Enact a comprehensive national space law
- Strengthen statutory authority and capacity of IN-SPACe
- Expand industrial manufacturing and testing infrastructure
- Enable long-term capital for space hardware development
- Reposition ISRO towards frontier research and system innovation

Conclusion

ISRO has convincingly demonstrated that India can execute world-class space missions. The more demanding challenge ahead is institutional—building systems capable of delivering such missions routinely, efficiently, and sustainably. India’s future space power will be shaped not only by launches and laboratories, but equally by laws, governance structures, and industrial ecosystems that transform technological brilliance into enduring national capability.

Reader's Note — About This Current Affairs Compilation

Dear Aspirant,

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While every effort has been made to balance depth with brevity, please keep the following in mind:

1. Orientation & Purpose

This compilation is curated primarily from the UPSC Mains perspective — with emphasis on conceptual clarity, analytical depth, and interlinkages across GS papers.

However, the PrepAlpine team is simultaneously developing a dedicated Prelims-focused Current Affairs Series, designed for:

- factual coverage
- data recall
- Prelims-style MCQs
- objective pattern analysis

This Prelims Edition will be released separately as a standalone publication.

2. Content Length

Some sections may feel shorter or longer depending on topic relevance and news density. To fit your personal preference, you may freely resize or summarize sections using any LLM tool (ChatGPT, Gemini, Claude, etc.) at your convenience.

3. Format Flexibility

The formatting combines:

- paragraphs
- lists
- tables
- visual cues

—all optimised for retention.

If you prefer a specific style (lists → paras, paras → tables, etc.), feel free to convert using any free LLM.

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