

# CURRENT AFFAIRS

*For Integrated Preparation of CSE Prelims + Mains + Interview*



**Special Feature**

**SEPTEMBER**  
**Monthly MCQs**

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- 📌 Important Days in September
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- 📌 Obituaries in News
- 📌 Awards and Prizes

## IMPORTANT ARTICLES FROM

📌 YOJANA.....	100
📌 KURUKSHETRA.....	105
📌 DOWN TO EARTH.....	110
📌 EPW.....	112
📌 FRONTLINE.....	77

*\*MCQs on Prelims Latest Pattern*

- India at UNHRC
- Five New Maritime Bills
- Export Promotion Mission
- 'Sunset Clause' for Forest Rights
- National River Conservation Plan
- India-China on Global AI governance
- India-US 2+2 Intersessional Dialogue
- Rise in Female Workforce Participation

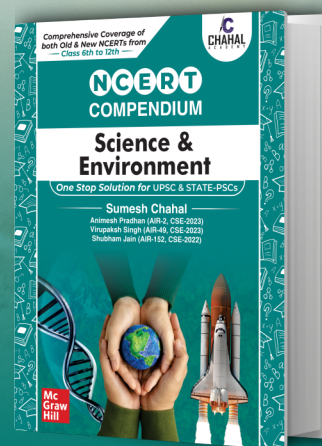
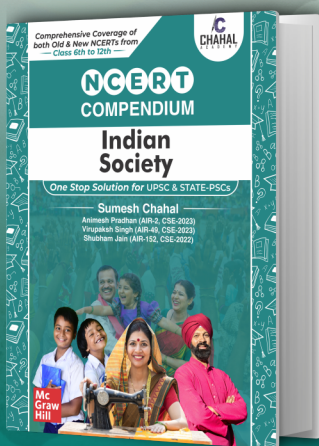
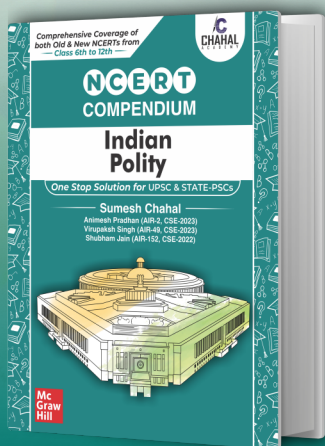
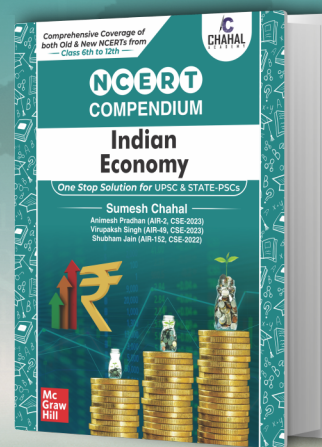
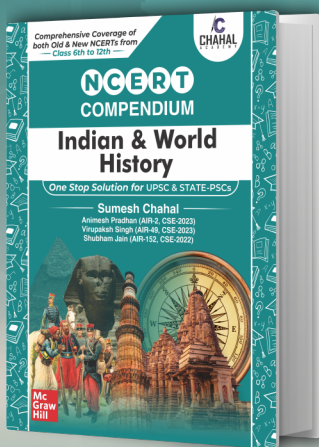
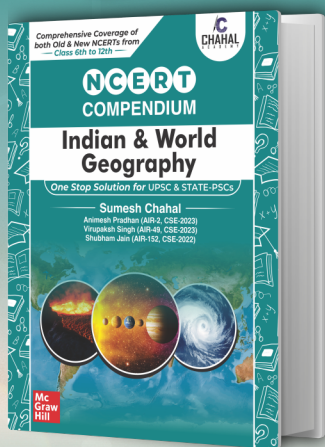
- Doctrine of Escheat
- Saltwater Crocodiles
- Exercise Achook Prahar
- National River Conservation Plan
- SC Calls for Regulating Social Media
- National Authority for Carbon Trading
- India's first National Biofoundry Network
- ISRO conducts Air Drop Test for Gaganyaan

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# CONTENTS

<b>POLITY &amp; GOVERNANCE</b> .....	<b>3</b>	▪ ATLANTIC MERIDIONAL OVERTURNING CIRCULATION (AMOC)...	62
▪ NOMINATION POWERS OF JAMMU AND KASHMIR LEGISLATIVE ASSEMBLY.....	3	<b>SCIENCE &amp; TECHNOLOGY</b> .....	<b>63</b>
▪ OBC CREAMY LAYER CRITERIA.....	4	▪ FENTANYL: THE POTENT THREAT TO GLOBAL HEALTH AND SECURITY.....	63
▪ FIRST DIGITALLY LITERATE STATE: KERALA.....	6	▪ RARE QUADRUPLE STAR SYSTEM DISCOVERED IN THE MILKY WAY ...	64
▪ FIVE NEW MARITIME BILLS .....	7	▪ SURYA AI: NASA AND IBM'S BREAKTHROUGH IN SOLAR FORECASTING.....	65
▪ BONNARD STANDARD .....	10	▪ LUNAR MODULE LAUNCH VEHICLE (LMLV) .....	65
▪ DOCTRINE OF ESCHEAT .....	12	▪ ISRO'S INTEGRATED AIR DROP TEST (IADT-1).....	66
▪ THE DRAFT CIVIL DRONES (PROMOTION AND REGULATION) BILL 2025.....	13	▪ PRATUSH RADIOMETER: INDIA'S WINDOW TO THE COSMIC DAWN ...	67
▪ MINES AND MINERALS (DEVELOPMENT AND REGULATION) AMENDMENT BILL 2025 .....	14	▪ JAROSITE DISCOVERY IN KUTCH: INDIA'S OWN MARS ANALOGUE ....	68
▪ THE IMMIGRATION AND FOREIGNERS ACT, 2025 .....	16	▪ THE HIDDEN HUMAN COST OF ARTIFICIAL INTELLIGENCE.....	68
▪ PERSONALISED ADAPTIVE LEARNING (PAL).....	18	▪ SAMBHAV: INDIA'S INDIGENOUS SECURE MOBILE ECOSYSTEM .	70
▪ ENVIRONMENT AUDIT RULES 2025 .....	20	▪ ISRO CONDUCTS AIR DROP TEST FOR GAGANYAAN .....	70
▪ RIGHT TO EDUCATION & MINORITY EDUCATIONAL INSTITUTIONS .....	21	<b>DEFENCE &amp; SECURITY</b> .....	<b>72</b>
<b>INTERNATIONAL RELATIONS</b> .....	<b>23</b>	▪ SUSTAINABLE POWER 1404 .....	72
▪ LIPULEKH PASS ISSUE .....	23	▪ EXERCISE 'MAITREE' .....	72
▪ INDIA-CHINA ON GLOBAL AI GOVERNANCE.....	23	▪ MISSION SUDARSHAN CHAKRA .....	72
▪ INDIA'S GROWING ENGAGEMENT WITH GLOBAL SOUTH AND MULTILATERAL COOPERATION .....	25	▪ CISF LAUNCHES FIRST ALL-WOMEN COMMANDO UNIT .....	73
▪ SAUDI-PAKISTAN SIGN "STRATEGIC MUTUAL DEFENCE" PACT ...	27	▪ INDIA UNVEILS THREE NEW JOINT DOCTRINES FOR ARMED FORCES...74	
▪ INDIA AND IRAN: ANCIENT CIVILIZATIONS SHAPING NEW WORLD. ....	27	▪ EXERCISE 'ACHOOK PRAHAR' .....	75
▪ INDIA AT UNHRC .....	29	<b>SOCIAL ISSUES</b> .....	<b>76</b>
▪ DEFENCE PROCUREMENT MANUAL 2025.....	30	▪ STUNTING AND MALNUTRITION IN INDIA: AN ONGOING CHALLENGE.....	76
▪ INDIA-SINGAPORE RELATIONS .....	32	▪ UGC DRAFT LEARNING OUTCOMES-BASED CURRICULUM FRAMEWORK (LOCF) 2025 .....	76
▪ INDIA-US 2+2 INTERSESSIONAL DIALOGUE.....	33	▪ DOMESTIC SPHERE AND WOMEN'S EMPOWERMENT .....	77
▪ INDIA-JAPAN RELATIONS .....	35	▪ SC CALLS FOR REGULATING SOCIAL MEDIA.....	78
▪ H-1B VISA.....	36	<b>HISTORY &amp; CULTURE</b> .....	<b>80</b>
▪ EUROPEAN UNION – INDIA STRATEGIC ROADMAP TO 2025 .....	38	▪ ATHACHAMAYAM PROCESSION.....	80
<b>ECONOMY &amp; AGRICULTURE</b> .....	<b>40</b>	▪ DARUMA DOLL .....	81
▪ URBAN CHALLENGE FUND .....	40	▪ SIRARAKHONG HATHEI CHILLI FESTIVAL.....	82
▪ INDIA'S LABOUR PRODUCTIVITY GAP.....	41	▪ MANKI-MUNDA SYSTEM.....	83
▪ RBI LIQUIDITY MANAGEMENT FRAMEWORK REVIEW .....	42	▪ HARAPPAN SCRIPT .....	85
▪ SHADOW SCHOOLING .....	44	▪ TENTATIVE SITES FROM INDIA IN UNESCO'S LIST.....	86
▪ EXPORT PROMOTION MISSION .....	45	<b>GOVERNMENT SCHEMES</b> .....	<b>89</b>
▪ INDEX OF INDUSTRIAL PRODUCTION (IIP) .....	46	▪ ADI KARMAYOGI ABHIYAN: BUILDING TRIBAL LEADERS AT THE GRASSROOTS.....	89
▪ ALL INDIA DEBT AND INVESTMENT SURVEY (AIDIS) & SITUATION ASSESSMENT SURVEY (SAS) OF AGRICULTURAL HOUSEHOLDS .....	47	▪ INCENTIVE SCHEME TO PROMOTE CRITICAL MINERAL RECYCLING ...	89
▪ INDIA CONSUMER OUTLOOK REPORT.....	48	▪ PM MITRA YOJANA .....	90
▪ GDP GROWTH RATE HITS 7.8% .....	50	▪ MUKHYAMANTRI MAHILA ROJGAR YOJANA WOMEN EMPLOYMENT SCHEME.....	91
<b>ENVIRONMENT &amp; GEOGRAPHY</b> .....	<b>51</b>	<b>REPORTS</b> .....	<b>92</b>
▪ COP-30: FROM NEGOTIATION TO IMPLEMENTATION IN GLOBAL CLIMATE GOVERNANCE .....	51	▪ GLOBAL INNOVATION INDEX 2025 .....	92
▪ SINGLE-THREAD VERSUS MULTI-THREAD RIVERS.....	52	▪ STATE FINANCES REPORT .....	93
▪ HIGH SEAS TREATY .....	54	▪ RETHINKING HOMESTAYS: NITI AAYOG'S VISION FOR SUSTAINABLE TOURISM.....	94
▪ 'SUNSET CLAUSE' FOR FOREST RIGHTS .....	55	▪ RISE IN FEMALE WORKFORCE PARTICIPATION .....	95
▪ SALTWATER CROCODILES.....	56	▪ ANNUAL SURVEY OF INDUSTRIES (ASI) 2023-24 .....	96
▪ NATIONAL RIVER CONSERVATION PLAN .....	58		
▪ NATIONAL AUTHORITY FOR CARBON TRADING .....	59		
▪ INDIA'S FIRST NATIONAL BIOFOUNDRY NETWORK .....	60		

<b>PERSONALITIES IN NEWS .....</b>	<b>97</b>	<b>ARTICLES FROM ECONOMIC &amp; POLITICAL WEEKLY (SEP - 2025) ....</b>	<b>112</b>
▪ ACHARYA VINOBA BHAVE (1895–1982) .....	97	▪ EMPLOYER SOCIAL SECURITY BENEFITS AND JOB RETENTION IN INDIA: POLICY IMPLICATIONS FOR ECONOMIC GROWTH.....	112
▪ C.P. RADHAKRISHNAN: INDIA’S 15TH VICE PRESIDENT .....	98	▪ THE SMART CITIES MISSION (SCM) IN INDIA .....	113
▪ SUSHILA KARKI – NEPAL’S FIRST WOMAN PRIME MINISTER.....	98	<b>QUICK REVISION .....</b>	<b>115</b>
<b>ARTICLES FROM YOJANA (SEPTEMBER 2025) .....</b>	<b>100</b>	▪ IMPORTANT DAYS IN SEPTEMBER 2025 .....	115
▪ SWACHH BHARAT MISSION (GRAMEEN) & JAL JEEVAN MISSION – PAVING WAY FOR VIKSIT BHARAT @2047 .....	100	▪ IMPORTANT EVENTS / SUMMITS / CONFERENCES IN SEPTEMBER 2025.....	115
▪ EMPOWERING WOMEN & NURTURING CHILDREN THROUGH WASH102		▪ AWARDS AND PRIZES IN SEPTEMBER 2025.....	116
<b>ARTICLES FROM KURUKSHETRA (SEPTEMBER 2025).....</b>	<b>105</b>	▪ TEAMS IN NEWS IN SEPTEMBER 2025.....	116
▪ FOSTERING JOBS, BUILDING BHARAT – ELI SCHEME AS A GAMECHANGER.....	105	▪ OBITUARIES IN SEPTEMBER 2025 .....	116
▪ AI-ENABLED DIGITAL SKILLING FOR RURAL INDIA .....	107	<b>DAILY MCQS FROM THE HINDU &amp; INDIAN EXPRESS (SEP - 2025)....</b>	<b>117</b>
<b>ARTICLES FROM DOWN TO EARTH (SEPTEMBER 2025).....</b>	<b>110</b>	▪ DAILY MCQS PRACTICE .....	117
▪ CLIMATE CHANGE AND THE RISING GLOBAL BURDEN OF DENGUE. 110		▪ DAILY MAINS ANSWER WRITING PRACTICE .....	129
▪ AI-BASED RETINAL IMAGING: A NEW FRONTIER IN PREDICTIVE HEALTHCARE .....	110		

# POLITY & GOVERNANCE

## NOMINATION POWERS OF JAMMU AND KASHMIR LEGISLATIVE ASSEMBLY

**Why in News:** The Union Home Ministry, in its affidavit before the Jammu & Kashmir and Ladakh High Court, has submitted that the power of the Lieutenant Governor (LG) of Jammu & Kashmir (J&K) to nominate five members to the Legislative Assembly of J&K can be exercised by him without the aid and advice of its Council of Ministers.

### Key Details

- These nominations are meant to include two women, two Kashmiri migrants, and one person displaced from Pakistan-occupied Kashmir.
- The claim has raised debates around constitutional principles especially democratic accountability, the role of elected governments vs. appointed authorities, and the division of powers in UTs.

### Constitutional Provisions

- The Constitution of India allows for the inclusion of nominated members in both the Parliament and State legislatures.
- The provision for appointing two Anglo-Indian members to the Lok Sabha and one Anglo-Indian member to the State Legislative Assemblies was abolished in 2020.
- The **Rajya Sabha** consists of 12 nominated members (having special knowledge in literature, science, art, and social service), who are appointed by the President (**Article 80**) based on the recommendations of the Union Council of Ministers.
- In the six States that have **Legislative Councils**, approximately one-sixth of the members are nominated, with these appointments made by the Governors upon the advice of the States' Council of Ministers (**Article 171**).

### Anglo-Indian Members

- Earlier, the Constitution allowed the President (Article 331) to nominate two Anglo-Indian members to the Lok Sabha and Governors (Article 333) to nominate one Anglo-Indian member to State Legislative Assemblies.
- Both provisions were abolished by the 104th Constitutional Amendment in 2020.

### Legal/Statutory Provisions

UTs	Legal Basis	Number of Elected MLAs	Nominated MLAs	Who has the power
Delhi	Section 3 of the Government of	70 elected MLAs.	No nominated	Not applicable

	National Capital Territory of Delhi Act, 1991.		MLAs per law.	
Puducherry	Section 3 of the Government of Union Territories Act, 1963	30 elected MLAs	Up to 3 nominated MLAs	The Union Government has the power to nominate. In practice, nomination is done under the UT Act. Whether advice of the UT's Council of Ministers is required has been subject to debate/court rulings.
Jammu & Kashmir	Section 14 of the J&K Reorganization Act, 2019 (amended in 2023)	90 elected seats	Up to 5 nominated (2 women, 2 Kashmiri migrants + 1 displaced from PoK)	The LG may nominate without the aid & advice of Council of Ministers (according to recent MHA affidavit)

### Judicial principles involved

- **UTs are not states:** The legislative assemblies in UTs (where they exist) are created by Acts of Parliament, not by the Constitution in the same way State legislatures are. Thus, the power and structure (including nominations) are defined by law.
- **Aid & advice principle:** In States (and in many UT matters), Governors or similar constitutional figures act on the aid and advice of the Council of Ministers. The question is whether that applies when the LG or Union government nominates in UTs, especially when the statute is silent or gives power explicitly to the LG or Union government.
- **Court rulings:** Courts (High Courts, and sometimes the Supreme Court) have interpreted UT Acts and past nominations. For example, a Puducherry case (K.

Lakshminarayanan vs Union of India, 2018) discussed whether advice from the UT government is needed.

- **Democratic accountability & federal balance:** The concerns are especially strong when nominated members might affect the majority/minority balance in small assemblies. If nomination powers rest with unelected officials (like LGs) without needing the UT government's advice, this could undermine the mandate of elected representatives.

### Judicial interpretations and rulings

- **Puducherry Case (K. Lakshminarayanan vs Union of India, 2018):** The Madras High Court affirmed the authority of the Union government to appoint three MLAs to the Puducherry Assembly without requiring the advice of the Union Territory government.
  - ✓ It suggested the need for statutory clarity regarding the nomination process, encompassing the relevant authority and procedures; however, the Supreme Court subsequently overturned these recommendations upon appeal.
- **Delhi Case (Government of NCT of Delhi vs Union of India, 2023):** The Supreme Court examined the principle of the "triple chain of command," which establishes that civil servants are accountable to ministers, ministers to the legislature, and the legislature to the electorate.
- It determined that the **Lieutenant Governor must adhere to the advice of the Council of Ministers**, except in instances that exceed the jurisdiction of the Delhi Assembly.

### Key impacts, challenges and potential consequences

Dimensions	Impacts	Challenges
Democratic Norms	Enables direct LG control; undermines advice principle	Erodes elected government authority
Politics	May shift power dynamics in Assembly	Undermines public trust in elections
Legal	Statutory ambiguity; opens door to interpretation	Contradicts SC rulings on LG powers
Federalism	Increases Centre's role in UTs	Reduces UT autonomy
Governance	Ensures minority representation	Risks politicization of nominations

### Conclusion

The nomination of MLAs by the LG without elected government advice raises critical concerns about democratic accountability and federal balance. While aiming for inclusive representation, such moves risk undermining electoral legitimacy and centralising power, highlighting the need for clearer legal safeguards to uphold constitutional principles in Union Territories like Jammu & Kashmir.

### EXPECTED QUESTION FOR UPSC CSE

#### Prelims MCQ

Q. Which of the following is a key constitutional concern regarding the Lieutenant Governor nominating members to the Jammu & Kashmir Legislative Assembly without the aid and advice of the elected government?

- It violates the separation of powers between the judiciary and legislature
- It undermines the principle of democratic accountability and representative government
- It exceeds the financial powers of the Union Government
- It breaches the international human rights treaties signed by India

**Answer: (b)**

### OBC CREAMY LAYER CRITERIA

**Why in News:** The union government is considering ways to ensure "equivalence" in the application of the 'creamy layer' criteria in reservations for Other Backward Classes (OBCs) across various positions in central and state government services, public sector enterprises, universities, etc.

#### Key Details

- The guidelines established to define 'creamy-layer' OBCs are not comprehensive. There are anomalies that hinder the consistent implementation of quota benefits. The government proposes to address this issue.
- A new proposal has been developed following discussions among various government ministries and departments, as well as organizations like NITI Aayog and the National Commission for Backward Classes (NCBC)

#### Concept of Creamy Layer

- The concept of the 'creamy layer' was introduced following the Supreme Court's judgment in the Indra Sawhney case (1992), which upheld the implementation of the Mandal Commission's recommendations but stipulated that affluent sections within the OBCs, termed as the 'creamy layer', should be excluded from the benefits of reservation.
- Consequently, the Department of Personnel and Training (DoPT) issued guidelines in 1993 to identify the creamy layer, primarily based on income and parental occupation.

#### Proposed Equivalence Framework

- **Sector-Wise Equivalence in Post Hierarchies**
  - ✓ Posts across government services are currently categorized into Group A, B, C, and D with Group A generally falling under the creamy layer exclusion.
  - ✓ The new framework proposes mapping similar-level posts in other sectors:
    - **Universities:** Assistant Professor (Level 10), Associate Professor (Level 13A), and Professor

(Level 14) may be treated equivalent to Group A, thus excluded from OBC reservation.

- **PSUs & autonomous bodies:** Higher executive or managerial positions may be grouped equivalently with government service levels.
- **Private sector:** While more complex, income thresholds (currently ₹8 lakh/year, potentially revised to ₹15 lakh) will be used as a proxy for equivalence.
- **Standardization of Parental Occupation Criteria**
  - ✓ Currently, creamy layer status is determined based on parental position and income.
  - ✓ The framework will create a uniform definition of “equivalent positions” across sectors e.g., a private-sector CEO or university professor might be treated on par with an IAS officer or PSU executive.
  - ✓ Uniform occupational thresholds will address inconsistencies where similar-level posts are treated differently across sectors.
- **Review of Income Ceiling and Components**
  - ✓ The current income ceiling for creamy layer exclusion is ₹8 lakh per annum (set in 2017).
  - ✓ A revision to ₹15 lakh is under consideration, based on rising incomes and inflation.
  - ✓ The new framework may also redefine what counts as income including agricultural income, private business income, or assets to prevent evasion and manipulation.
- **Inclusion of Wealth & Asset Ownership**
  - ✓ In the private sector, especially, wealth and assets may serve as markers for affluence.
  - ✓ The government may adopt a combined measure of income and assets to identify creamy layer individuals in sectors where job grades do not exist.
  - ✓ For example, those owning multiple commercial properties, expensive vehicles, or large agricultural land may be deemed part of the creamy layer.
- **Uniform Treatment across States & Institutions**
  - ✓ Currently, states have different creamy layer rules, and some institutions (e.g., IITs, central universities) have been applying criteria inconsistently.
  - ✓ The proposed framework would:
    - Enforce common standards nationwide, including central and state government institutions.
    - Avoid anomalies where a candidate qualifies for OBC reservation in one institution but not in another.
- **Linking with Digital verification & Records**
  - ✓ The equivalence framework may integrate with digital tools (like DigiLocker, income databases, Aadhaar-linked records) for verification.
  - ✓ **This will ensure:**
    - Transparency in identifying creamy layer status.
    - Reduced forgery or misreporting of income/position.

- **Periodic Review Mechanism**
  - ✓ The framework is likely to include a review clause, ensuring criteria are updated with time and economic changes.
  - ✓ This would avoid the problem of outdated income thresholds and social realities.
- **Educational & Professional Qualifications**
  - ✓ Some proposals suggest factoring in educational qualifications or type of schooling (elite vs. government schools) as additional indicators of social advancement.
  - ✓ However, this idea is still controversial and not part of formal policy yet.

### Implications

- **Uniformity in Application:** It would create a standardized method for determining creamy layer status, reducing discrepancies across sectors.
- **Enhanced Transparency:** A clear and consistent framework would improve transparency in the reservation process.
- **Potential Exclusion of Eligible Candidates:** While aiming for fairness, there's a risk that some deserving candidates might be excluded from OBC reservations due to the stringent criteria.

Socio-Economic implications	Administrative implications
<b>Promotes Fairness within OBC Communities</b> <ul style="list-style-type: none"> <li>• Ensures that more disadvantaged individuals within the OBC category get reservation benefits.</li> <li>• Prevents better-off OBCs (with higher jobs/income) from cornering benefits meant for the marginalized.</li> </ul>	<b>Standardization Across Sectors</b> <ul style="list-style-type: none"> <li>• Brings uniform criteria for creamy layer exclusion across government, PSUs, universities, and private sector.</li> <li>• Eases confusion in application of rules in recruitment and admissions.</li> </ul>
<b>Reduces Intra-OBC Inequality</b> <ul style="list-style-type: none"> <li>• Helps flatten the hierarchy within the OBC bloc by excluding the affluent layer across all sectors.</li> <li>• Could potentially open up opportunities for artisans, farmers, informal workers, and those in lower-income private jobs.</li> </ul>	<b>Greater Transparency and Accountability</b> <ul style="list-style-type: none"> <li>• Reduces discretionary interpretation of creamy layer status by departments or states.</li> <li>• Digital record-linking (income, job grade) may make the process more accountable.</li> </ul>
<b>Concerns of Over-Exclusion</b> <ul style="list-style-type: none"> <li>• Some fear that deserving candidates (e.g. children of mid-</li> </ul>	<b>Implementation Complexity</b> <ul style="list-style-type: none"> <li>• Determining "equivalence" of posts</li> </ul>

<p>level employees or self-employed professionals) may be unfairly excluded due to broad criteria.</p> <ul style="list-style-type: none"> <li>• Risk of shrinking the pool of eligible OBC candidates in higher education and jobs, especially from private-sector backgrounds.</li> </ul>	<p>in private sector, autonomous bodies, or academia can be subjective and difficult.</p> <ul style="list-style-type: none"> <li>• Requires detailed and sector-specific guidelines and may face legal or procedural delays.</li> </ul>
<p><b>Impact of Educational Access</b></p> <ul style="list-style-type: none"> <li>• Exclusion of candidates due to equivalence may reduce OBC representation in elite institutions if not balanced with revised income/asset limits.</li> <li>• Could reduce social mobility if not backed by broader support measures (like scholarships, coaching, etc.).</li> </ul>	<p><b>Burden of Verification</b></p> <ul style="list-style-type: none"> <li>• Increases administrative burden for verifying income, occupation, wealth especially in the unorganized and informal sector.</li> <li>• Needs better digital infrastructure to reduce manual paperwork and potential corruption.</li> </ul>

### Conclusion

The government's consideration of establishing equivalence in the application of the creamy layer condition reflects a proactive approach to address existing disparities and ensure equitable distribution of reservation benefits. However, careful deliberation is essential to balance the objectives of fairness and inclusivity, ensuring that the policy reforms serve the intended purpose without unintended exclusions.

### EXPECTED QUESTION FOR UPSC CSE

#### Descriptive Question

Q. Critically examine the rationale behind the proposal to establish 'equivalence' in the application of the creamy layer condition for OBC reservation, and discuss its potential socio-economic and administrative implications. [150 Words] [10 Marks]

## FIRST DIGITALLY LITERATE STATE: KERALA

**Why in News:** Recently, Kerala was officially declared the first Indian state to achieve 100% digital literacy.

### Key Details

- The achievement comes under the **Digi Keralam (or Digi Kerala) programme**, launched in 2023 by the Kerala government, under the Local Self Government Department.
- A survey was carried out in 83 lakh+ families (~8.3 million families) covering about 1.5 crore people.

- From the survey, around 21.88 lakh people were identified as digitally illiterate. Nearly 99.98-99.99% of them completed training and passed the evaluation. This includes persons over 90 years old.
- Training involved volunteers (over 2.5 lakh volunteers) from various social groups Kudumbashree, NSS, NCC, Youth organizations etc.
- The modules taught basics like using smartphones, sending WhatsApp messages, basic use of e-services/public service apps, booking gas, using Google Search, and social media. Also included were awareness aspects like fake news.

### Challenges & limitations

- **Quality of literacy:** Basic digital literacy (sending messages, etc.) is good, but does it translate to digital skills needed for more complex usage (e.g. digital financial security, cyber-awareness)?
- **Connectivity issues:** Remote or tribal areas might still struggle with network availability, device access.
- **Sustainability & update:** Digital technology changes quickly training modules will need continuous updating; also ensuring people keep using skills.
- **Equity concerns:** Even though nearly everyone was covered, some may still be left out especially those physically disabled, severely aged, remote from resources. Verifying that "completion" translates to meaningful access.
- **Dependence on volunteers:** Volunteer-driven models are good, but risk of varying quality, consistency. Supervision, standardization matters.

### Implications & significance

- **Model for other states:** A replicable template showing that with commitment, community participation and robust planning, digital divides can be bridged.
- **Boost to e-governance:** Digital literacy is foundational for achieving broader goals like digital payments, accessing government services online, smart governance.
- **Economic inclusion:** Helps more people access job opportunities, online markets, financial inclusion, potentially boosting livelihoods.
- **Social empowerment:** For older people, women, rural residents' digital literacy can reduce isolation, improve access to information, health, and connectivity.

### Why digital literacy is needed in India

- **Bridging the Digital Divide**
  - ✓ Large rural-urban and socio-economic gaps in access to and use of technology.
  - ✓ Digital illiteracy exacerbates exclusion from essential services, especially under Digital India.
- **Access to Government Services**
  - ✓ With services like DigiLocker, CoWIN, ration card management, land records, UPI payments being digitally literate is no longer optional.

- **Empowering Marginalised Groups**
  - ✓ Women, elderly, SC/ST, and rural populations are disproportionately left behind without digital skills.
- **Resilience in Crises**
  - ✓ COVID-19 showed how lack of digital skills left millions out of education, healthcare, and financial assistance.

### Government Initiatives

Scheme/ Program	Purpose
Digital India (2015)	Digital empowerment and connectivity
PM Garib Digital Saksharta Abhiyan (PMGDISHA)	Digital literacy for 5 crore rural citizens
Common services centres	Front-end access to e-services in rural areas
National Digital Literacy Missions	Digital literacy for one adult per household
Kerala's initiatives	
Initiatives	Features
Digi Kerala Mission (2023)	Targeted 100% digital literacy
Akshaya Centres (since 2002)	Digital access points at panchayat level
Kudumbashree volunteers	Key agents in outreach and training
Pullampara Model	India's first fully digital panchayat (2022)- served as a blueprint

### Way Forward

- **Continuous Learning Ecosystems:** Periodic digital refresher courses via libraries, schools, panchayats.
- **Infrastructure Push:** Invest in last-mile internet access, subsidized smartphones, digital libraries.
- **Digital Literacy + Financial Literacy:** Integrate digital training with cybersecurity, financial literacy, and online safety (especially for women, elderly).
- **Standardised Metrics:** Develop national standards to measure and monitor digital literacy, not just through numbers trained but usage patterns.
- **Curriculum Integration:** Add digital skills to school-level education, especially in vernacular medium schools.

### Conclusion

Kerala's achievement marks a milestone in India's digital transformation, proving that community-led, inclusive models can overcome structural gaps. However, the goal must evolve from basic literacy to deep digital empowerment ensuring every citizen can safely and meaningfully participate in the digital economy.

### EXPECTED QUESTION FOR UPSC CSE

#### Descriptive Question

Q. "Digital literacy is no longer a luxury but a necessity for inclusive governance and participatory democracy." In light of Kerala becoming the first fully digitally literate state in India, discuss the role of digital literacy in strengthening democratic participation and inclusive development. [250 Words] [15 Marks]

### FIVE NEW MARITIME BILLS

**Why in News:** Indian Parliament passed five landmark maritime bills, which overhauled colonial-era maritime laws and modernize the blue economy.

#### Key Details

- Bills are aimed at improving trade and commerce, environmental safeguards, and coastal shipping.
- India wants to align its maritime sector with global standards under the Maritime Amrit Kaal Vision 2047.

#### Blue Economy

- The Blue Economy refers to the sustainable use of ocean resources for economic growth, improved livelihoods, and jobs, while preserving the health of ocean ecosystems.
- It goes beyond traditional ocean-based sectors like shipping and fishing to include emerging areas like:
  - ✓ Marine biotechnology
  - ✓ Deep-sea mining
  - ✓ Offshore renewable energy (e.g., wind, tidal)
  - ✓ Coastal ecotourism
  - ✓ Sustainable aquaculture
  - ✓ Ocean-based climate solutions

#### About Five key maritime laws

Bill	Previous legislation	Key features/ Purpose
Bills of Lading Bill, 2025		<ul style="list-style-type: none"> <li>✓ Simplify legal documents (bills of lading), reduce disputes, and improve ease of doing business.</li> </ul>
Carriage of Goods by Sea Bill, 2025	Indian Carriage of Goods by Sea Act 1925 (which was based on earlier Hague Rules etc.)	<ul style="list-style-type: none"> <li>✓ Repeals and replaces the 1925 Act.</li> <li>✓ Language and structure of law simplified, more modern drafting to reduce ambiguity and litigation.</li> <li>✓ Retained "substantially" the framework (e.g. responsibilities, liabilities, rights, immunities) but aligns more closely with current international standards and treaties.</li> <li>✓ Empowers the Central Government to amend the</li> </ul>

		<p>schedule of applicable rules/rules about bills of lading via notification, making updates more flexible.</p> <ul style="list-style-type: none"> <li>✓ Expanded applicability: covers goods carried from Indian ports to foreign ports, and between Indian ports.</li> </ul>
Coastal Shipping Bill, 2025		<ul style="list-style-type: none"> <li>• Aim to revive India's share of coastal shipping (currently ~6%) to save on logistics costs (~₹10,000 crore annually), reduce pollution and road congestion.</li> </ul>
Merchant Shipping Bill, 2025	Merchant Shipping Act 1958; Coasting Vessels Act 1838	<ul style="list-style-type: none"> <li>✓ Replaces multiple older, fragmented laws with a consolidated framework.</li> <li>✓ Aligns with major international maritime conventions (SOLAS, MARPOL, Ballast Water Management, Wreck Removal, etc.).</li> <li>✓ Broadens definition and scope of vessels: includes mobile offshore drilling units, submersibles, non-displacement crafts.</li> <li>✓ More facilitation for ownership: Indian-flagged vessels can be owned wholly/partly by Indian citizens, NRIs, OCIs, or companies/cooperatives; more flexible registration.</li> <li>✓ Reduced compliance burdens, more digital / remote / electronic processes (registration, certificates) etc.</li> <li>✓ Improved safety, environmental and emergency response provisions.</li> </ul>
Indian Ports Bill, 2025	Indian Ports Act 1908 (Colonial era)	<ul style="list-style-type: none"> <li>✓ Replaces the 1908 law.</li> <li>✓ Creates State Maritime Boards with powers over non-major ports, giving states more autonomy / responsibility.</li> <li>✓ Establishes a Maritime State Development Council (MSDC) to</li> </ul>

		<p>coordinate between Centre &amp; States and provide integrated planning.</p> <ul style="list-style-type: none"> <li>✓ Environmental safeguards: port pollution control, waste reception facilities, "green port" initiatives, shore power etc.</li> <li>✓ Dispute resolution mechanisms specific to ports sector.</li> <li>✓ Digitalization; simplified procedures; transparent tariff policies; aligning port operations with global best practices.</li> </ul>
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**Advantages/ Benefits**

- **Modernisation and alignment with international norms:** Many of the old laws date back to early- or mid-20th century, which may not align well with contemporary shipping, trade, environmental, and safety norms. Updating them means India's maritime sector becomes more competitive internationally.
- **Reduced legal friction & better ease of doing business:** Simplifying documents (like bills of lading), adopting rules like **Hague-Visby**, clearer regulations for ports and shipping should help reduce litigation, ambiguity, delays — all of which cost money and time.
- **Cost savings and environmental benefits via coastal shipping:** By increasing modal share of coastal shipping, road congestion, emissions, and costs of inland transport could drop. The figure of approx. ₹10,000 crore annually saved is significant.
- **Better infrastructure / governance at ports:** Giving more power to state maritime boards, improving dispute resolution, creating a Council for maritime state development these institutions can help smaller ports and states contribute more effectively, improving port capacity, reducing bottlenecks.
- **Handling emergencies better:** Laws around wreck removal, salvage is important for safety, environment (oil spills, shipbreakers etc.), and risk mitigation. More efficient processes can limit damage and costs.

<p><b>Hague-Visby Rules</b></p> <ul style="list-style-type: none"> <li>✓ The Hague Visby Rules are a set of international rules for the carriage of goods by sea, designed to standardize rights and responsibilities between shippers (cargo owners) and carriers (shipowners).</li> <li>✓ They are an updated version of the Hague Rules of 1924, and were amended by the Visby Protocol (1968) hence the name Hague Visby Rules.</li> </ul> <p><b>They aim to:</b></p> <ul style="list-style-type: none"> <li>✓ Protect cargo owners from unfair practices by carriers</li> </ul>
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<ul style="list-style-type: none"> <li>✓ Protect carriers by setting clear limits on liability</li> <li>✓ Create uniform standards, reducing disputes in international shipping</li> <li>✓ Be legally enforceable in participating countries</li> </ul> <p><b>Why is India adopting the Hague-Visby Rules now?</b></p> <ul style="list-style-type: none"> <li>✓ Until now, India followed an older framework (from the Carriage of Goods by Sea Act, 1925, based on the original Hague Rules). These are outdated and not in line with global practices.</li> </ul> <p><b>By adopting Hague-Visby, India:</b></p> <ul style="list-style-type: none"> <li>✓ Aligns with modern international law</li> <li>✓ Makes its shipping laws predictable for global trade partners</li> <li>✓ Reduces legal friction for exporters/importers</li> <li>✓ Encourages more foreign investment in shipping/logistics</li> </ul>
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**Associated Challenges / Risks**

- **Implementation:** Passing laws is only the first step. Effective enforcement, clarity of rules/regulations, staffing, capacity building will matter a lot.
- **Coordination between Centre & States:** Since some powers are being devolved (e.g. for smaller ports, state maritime boards), there may be friction or inconsistencies among states in regulation, investment, and oversight.
- **Infrastructure investment needed:** To realize increases in coastal shipping, ports need infrastructure (terminals, coastal jetties), ensuring connectivity to hinterlands, regulatory & navigational support.
- **Transition costs / legal adaptations:** Existing contracts, shipping companies, port authorities will need to adapt rework legal documentation, training, compliance. There may be initial delays or disputes until things settle.

SWOT Analysis: India's Maritime Sector	
<p><b>S-Strength</b></p> <ul style="list-style-type: none"> <li>✓ <b>Strategic Location</b> on major global trade routes — central in the Indian Ocean region.</li> <li>✓ <b>Large coastline</b> (11,000+ km) and 200+ ports (12 major, 200+ minor/intermediate).</li> <li>✓ <b>Consistent cargo growth:</b> Major ports handled 855 MT in FY25 (up 4.3 % YoY).</li> <li>✓ <b>Improving port productivity:</b> turnaround time dropped from 96 to ~49.5 hours in last decade.</li> <li>✓ <b>Flagship policies:</b> Sagarmala, Maritime</li> </ul>	<p><b>W-Weakness</b></p> <ul style="list-style-type: none"> <li>✓ <b>High logistics cost:</b> 13–14% of GDP (vs 8–10% global average).</li> <li>✓ <b>Small share of global fleet:</b> Indian-flagged vessels make up a tiny portion of global merchant shipping.</li> <li>✓ <b>Aging fleet,</b> low competitiveness in shipbuilding and repair.</li> <li>✓ <b>Non-major ports</b> lag in infrastructure, mechanization, digital tools.</li> <li>✓ <b>Poor last-mile &amp; hinterland</b> connectivity,</li> </ul>

<p>India Vision 2030, PM Gati Shakti.</p> <ul style="list-style-type: none"> <li>✓ Growing <b>private investment</b> and PPP models in port infrastructure.</li> <li>✓ Maritime laws modernised in 2025 (Merchant Shipping Bill, Ports Bill, etc.)</li> </ul>	<p>particularly for eastern ports.</p> <ul style="list-style-type: none"> <li>✓ Environmental non-compliance risk: ballast water, oil spills, emissions.</li> <li>✓ Complex clearances, bureaucracy, and varying state-level regulations.</li> </ul>
<p><b>O-Opportunities</b></p> <ul style="list-style-type: none"> <li>✓ Huge potential to <b>increase coastal shipping share</b> (currently &lt;6%) → lower costs &amp; pollution.</li> <li>✓ Push for <b>green ports</b>, shore power, and clean fuels.</li> <li>✓ Government funding: ₹70,000 crore shipbuilding and port-linked infra package.</li> <li>✓ <b>Port-led industrial clusters</b> (logistics parks, FTZs, maritime SEZs).</li> <li>✓ Growing global trade → higher transshipment opportunity (esp. with mega ports like Vadhavan).</li> <li>✓ <b>Increased geopolitical relevance</b> in Indo-Pacific, Quad, BIMSTEC.</li> <li>✓ Potential to <b>be transshipment hub</b> alternative to Colombo, Singapore, Dubai.</li> </ul>	<p><b>T-Threats</b></p> <ul style="list-style-type: none"> <li>✓ Infrastructure and funding bottlenecks in smaller ports.</li> <li>✓ Global shipping volatility (e.g. Red Sea crisis, recession, oil price spikes).</li> <li>✓ <b>Rising climate risks:</b> cyclones, rising sea levels, port disruptions.</li> <li>✓ Regulatory uncertainty or delays in rules under new laws.</li> <li>✓ Skilled workforce shortage in maritime law, shipping operations, marine tech.</li> <li>✓ Competition from <b>regional hubs</b> (Singapore, Colombo, Jebel Ali, Malaysia).</li> <li>✓ ESG pressures, stricter IMO norms may strain legacy fleet and non-compliant ports.</li> </ul>

**Way Forward**

- **Capacity Building & Awareness:** Stakeholders (exporters/importers, port authorities, carriers, shippers, maritime legal professionals) should be trained/briefed on the new legal framework. Workshops, explanatory documents, maybe sectoral guidelines.
- **Implementation Infrastructure & Digital Systems:** Because many changes depend on digital/remote/electronic processing (registration, certificates, rule-amendments via notification), the government needs strong IT systems, perhaps portals, and regulatory bodies to handle this. Also, inspection & enforcement: capacities in pollution monitoring, safety audits, port state control etc.

- **Balancing Centre-States Relations:** Since many port powers are now with state maritime boards, coordination is essential to avoid conflicting rules, especially for non-major ports.
- **Environmental & Safety Compliance:** The new laws put emphasis on environmental obligations (pollution control, waste reception etc.). States and ports must invest in infrastructure (waste facilities, ballast water systems etc.). Also, regular audits, disaster and spill response systems.
- **Aligning with International Conventions:** Ensure India remains a signatory or ratifies relevant conventions, and that domestic law fully reflects treaty obligations. Engage with international shipping community / trade partners to ensure compatibility.

#### EXPECTED QUESTION FOR UPSC CSE

##### Descriptive Question

Q. Critically examine the recent legislative and policy measures taken to modernize India's maritime sector. Suggest a way forward to make India a leading maritime economy. [250 Words] [15 Marks]

#### BONNARD STANDARD

**Why in News:** The Supreme Court of India, in a recent ruling (2024-2025), reaffirmed the Bonnard Standard while hearing a case where a **pre-trial injunction** was sought to prevent journalists from publishing allegedly **defamatory content** against a corporate entity linked to the Adani Group.

##### The court emphasized that:

- **Freedom of the press** is a core democratic value.
- **Pre-publication bans** (prior restraint) are constitutionally suspect.
- Only in exceptional circumstances, where publication would cause immediate, serious, and irreparable harm, should such injunctions be considered.

This reaffirmation protects journalists and investigative media from being silenced prematurely via litigation threats.

##### Supreme Court Affirmation

- **Bloomberg Case (2024):** The Indian Supreme Court upheld the Bonnard standard by striking down an ex parte injunction against a Bloomberg report, emphasizing the need to avoid stifling public discourse.
- **Adani Case:** A Delhi court's order to journalists to take down allegedly defamatory content was seen as a violation of the Bonnard standard for issuing an ex parte injunction without hearing the journalists' defenses.

##### Pre-trial Injunction

- It is a court order issued before the actual trial begins, which restricts or compels a party to do or refrain from doing something.
- In defamation or media cases, it typically refers to an order restraining the publication or broadcast of certain information before it is made public.

- This form of injunction is a type of "prior restraint", and courts are usually reluctant to grant it, especially when it may violate the right to freedom of speech and expression.

##### Legal basis in India

- Under **Order 39 Rules 1 & 2 of the Civil Procedure Code (CPC)**, courts can grant temporary injunctions to prevent:
  - ✓ Waste or damage to property
  - ✓ Breach of contract
  - ✓ Harm to legal rights
- In defamation cases, a pre-trial injunction is considered extraordinary relief and is allowed only under exceptional circumstances, such as:
  - ✓ Publication of false and clearly defamatory content
  - ✓ The likelihood of irreparable harm to the plaintiff
  - ✓ Where no adequate remedy (like damages) exists after publication

##### Defamatory Content

- Defamatory content refers to any statement—spoken, written, or implied—that harms the reputation of a person, group, organization, or company by:
  - ✓ Exposing them to hatred, ridicule, or contempt, or
  - ✓ Lowering them in the estimation of others, or
  - ✓ Causing them to be shunned or avoided.

##### Bonnard Standard

- The Bonnard Standard, originating from the **1891 UK case Bonnard v. Perryman**, is a legal benchmark for prior restraint — i.e., preventing speech/publication before it happens.
- The standard holds that pre-publication injunctions (like **gag orders**) should be granted only in rare cases, where the publication is clearly defamatory, and where the harm would be irreparable and not adequately compensated through damages after the fact.

##### Gag Orders

- A gag order is a legal directive issued by a court or government authority that prohibits parties, lawyers, witnesses, or the media from publicly discussing or publishing certain information related to a legal case or ongoing investigation.
- It's a form of prior restraint, typically used to:
  - ✓ Protect the right to a fair trial.
  - ✓ Prevent prejudicing public opinion.
  - ✓ Safeguard sensitive or classified information.
  - ✓ Shield witnesses or victims from harassment or media exposure.

##### Legal basis in India

- There is no explicit statute for gag orders in India, but courts use their inherent powers under **Articles 129 and 215 of the Constitution (contempt powers), and Sections 151 & 95 of the CrPC** to:
  - ✓ Issue temporary or permanent injunctions.

- ✓ Restrain speech/publication in the interest of justice.
- Additionally, courts rely on **Article 19(2) reasonable restrictions on free speech** to justify **gag orders**, especially on grounds like:
  - ✓ Contempt of court
  - ✓ Defamation
  - ✓ Public order
  - ✓ National security

**Key dimensions of the Bonnard Standard**

- **Legal Dimension:**
  - ✓ Sets a high threshold for courts before restraining speech.
  - ✓ Applies mainly to **defamation, contempt, and privacy cases**.
- **Media & Press Freedom:**
  - ✓ Prevents abuse of legal processes by powerful individuals/entities to gag journalists.
  - ✓ Encourages watchdog journalism in public interest.
- **Democratic Norms:**
  - ✓ Upholds **Article 19(1)(a)** of the Indian Constitution (freedom of speech and expression).
  - ✓ Strengthens transparency and accountability in governance and business.
- **Corporate Reputational Risks vs Public Interest:**
  - ✓ Balances corporate reputation with **public’s right to know**.
  - ✓ Prevents misuse of defamation laws as a shield against scrutiny.

**Advantages of the Bonnard Standard**

- Protects journalistic freedom and ensures healthy public discourse.
- Prevents frivolous or malicious lawsuits to silence critics (a.k.a. **SLAPP suits**).
- Ensures due process before someone’s speech is curtailed.
- Encourages responsible journalism by offering protection only when public interest is served.

**Strategic lawsuits against public participation (SLAPP)**

- A SLAPP is a legal tactic used to intimidate, silence, or punish critics—particularly those who speak out on matters of public interest, such as:
  - ✓ Investigative journalists
  - ✓ Environmental activists
  - ✓ Human rights defenders
  - ✓ Whistleblowers
  - ✓ Academics or researchers

**Why a SLAPP unit is needed**

- With the growing use of litigation to suppress public discourse, especially in countries like India where freedom of expression is constitutionally protected (Article 19(1)(a)), a dedicated SLAPP Unit can:
  - ✓ Identify and flag SLAPPs early.

- ✓ Provide legal assistance or protection to targets of such suits.
- ✓ Prevent abuse of the judicial process.
- ✓ Promote public interest speech and media freedom.

**SLAPP Suit**

- It is a Strategic Lawsuit against Public Participation- a legal action filed not to seek justice, but to intimidate, censor, or silence individuals or organizations who speak out on issues of public interest.

**Characteristics of SLAPP suit**

Features	Explanation
Filed by powerful entities	Often corporations, politicians, or developers
Targets public participation	Especially speech on corruption, environment, corporate malpractice etc.
Weak legal merit	No real intention of winning the case; used to intimidate
Aims to exhaust resources	Forces the target to spend time, money, and energy on legal defense

**Types of SLAPP suits**

- Defamation suit (civil or criminal)
- Injunctions (to prevent publication or protest)
- Contempt of court
- Trademark or copyright misuse
- Nuisance suits against protests or RTI activists

**Disadvantages/ Limitations of Bonnard Standard**

- May allow genuinely harmful or false information to be published temporarily.
- The threshold of "clear and serious harm" is subjective and may vary from case to case.
- Delays in post-publication remedies (e.g., defamation trials) may not adequately repair reputational damage.
- Increasing speed and reach of digital media makes post-publication remedies less effective.

**Impacts and Implications**

- **Positive for democracy:** Strengthens the role of media as the fourth pillar.
- **Chilling effect avoided:** Prevents self-censorship among journalists fearing legal consequences.
- **Corporate pushback:** Entities may seek alternative strategies (like PR or regulatory complaints) instead of direct legal gagging.
- **Judicial consistency:** Reinforces precedent, ensuring courts don’t easily entertain prior restraint pleas.

**Way Forward**

- **Codify protections:** Consider introducing anti-SLAPP legislation in India to protect journalists.

- **Judicial training:** Ensure lower courts understand and apply the **Bonnard Standard** uniformly.
- **Faster defamation trial processes:** So that post-publication remedies are more effective.
- **Promote media ethics:** Legal protection should be balanced with responsibility in reporting.

## Conclusion

The Supreme Court's reaffirmation of the **Bonnard Standard** is a significant step in protecting press freedom and democratic transparency in India. In an age where strategic lawsuits against public participation (SLAPP) are on the rise, especially from powerful corporations or political entities, such rulings act as judicial safeguards.

### EXPECTED QUESTION FOR UPSC CSE

#### Descriptive Question

Q. Explain the "Bonnard Standard" and its role in protecting free speech in India. How can the creation of SLAPP units help curb misuse of litigation and strengthen democratic discourse? [150 Words] [10 Marks]

## DOCTRINE OF ESCHEAT

**Why in News:** The Supreme Court recently in the case of **State of Rajasthan Vs. Ajit Singh & Others** delivered a judgment, clarifying the application of the doctrine of escheat under **Section 29 of the Hindu Succession Act, 1956**.

### Judgement

- The court said that if a person has made a valid will and a court **has officially approved (given probate)** that will, then the government cannot take over the property using the "doctrine of escheat".
- The Supreme Court, in its judgment, emphasized the following points:
  - ✓ **Testamentary Succession Prevails:** Once a will is validly executed and granted probate, it overrides the state's claim under the doctrine of escheat.
  - ✓ **State's Locus Standi:** The State does not have the standing to challenge a private will or probate proceedings unless it has a direct legal interest in the matter.
  - ✓ **Doctrine of Escheat:** Section 29 of the Hindu Succession Act applies only in cases of intestate succession where no heirs exist.

### Probate

- When someone writes a will (a document saying who should get their property after they die), the will must be officially approved by a court. This approval process is called probate. Once a will is probated, it becomes legally valid and the instructions in the will must be followed.

### State's Locus Standi

- Locus Standi means the right or legal standing to bring a case or challenge a matter in court.

- State's Locus Standi means whether the **government has the legal right** to get involved or make claim in a particular case.
- If the **state's locus standi is denied**, it means the **government does not have the permission or right to interfere** or challenge that case because it has no direct interest in it.

### Legal Implications

- This ruling reinforces the sanctity of testamentary succession and the principle that a validly executed and probated will takes precedence over the state's claim under escheat laws.
- It also limits the state's interference in private succession matters, ensuring that the intentions of the testator are respected.

### Case background

- The dispute centered around the estate of **Raja Bahadur Sardar Singh of Khetri**, who passed away in 1987.
- In 1985, he executed a will bequeathing his properties to the Khetri Trust, a public charitable organization.
- After his death, the state of Rajasthan took possession of the estate, invoking the **Rajasthan Escheats Regulation Act, 1956**, arguing that the Raja had died intestate and heirless.
- However, the Delhi High Court upheld the validity of the will and granted probate in favor of the Khetri Trust. The state challenges this decision before the Supreme Court.

### Section 29 of the Hindu Succession Act, 1956

- This section deals with the situation when a Hindu dies without leaving a will (called **intestate**).
- And states that if a person dies intestate and leaves no legal heirs, then the property shall go to the government (called the **state**).
- In other words, if no family members or heirs can claim the property, the state inherits the property by default.

### Doctrine of Escheat

If a person dies without a will and no legal family members to inherit their property, then the property **automatically goes to the government**. This is called the doctrine of escheat – the government takes ownership because there's no one else to claim it.

### Key features of doctrine

- Applies mainly to immovable property (land, buildings).
- Ensures that property is not left ownerless or ownerless property is not held by private parties indefinitely.
- The state becomes the ultimate guardian of ownerless property.
- Prevents the vacuum of ownership, helping maintain order and public interest

## Doctrine of Escheat vs. Doctrine of Lapse

Aspect	Doctrine of Escheat	Doctrine of Lapse
Definition	Property reverts to the State when a person dies without legal heirs or claimant.	Territories or estates annexed by the British East India Company when a ruler died without a natural heir or without British approval of succession.
Application	Applies mainly to private property (land, assets) in modern legal systems.	Applied by British colonial rulers in princely states during the 19th century in India.
Legal basis	Enshrined in laws like Section 29 of the Hindu Succession Act, 1956 and state laws.	A political doctrine used as a tool for colonial expansion during British rule.
Trigger	Death of an individual without a will and heirs.	Death of a princely ruler without a male heir or without British-recognized succession.
Outcome	Property becomes ownerless and reverts to the government.	Territory/state is annexed by the British government.
Nature	Legal principle to prevent ownerless property.	Colonial policy for territorial acquisition.
Relevance today	Still applicable in property law.	Historical doctrine, no longer in effect post-independence.

### Way Forward

- **Strengthen Legal Awareness on Testamentary Rights:** Promote awareness about making valid wills to avoid disputes.
- **Clear guidelines for state intervention:** Define clear limits on when the state can use the doctrine of escheat.
- **Streamline probate process:** Simplify and speed up probate procedure.
- **Protect charitable trusts and public institutions:** Protect charitable trusts from arbitrary state claims.
- **Legislative review and reforms:** Review succession laws to reflect modern property issues.
- **Judicial vigilance and consistency:** Courts should uphold valid wills while balancing state interests.
- **Public policy considerations:** Develop policies balancing private property rights and public interest.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQs

**Q.** Under the Doctrine of Escheat, which of the following happens to a property when a person dies without legal heirs or a valid will in India?

- (a) The property is auctioned by the municipality

- (b) The property is inherited by the nearest neighbor  
 (c) The property passes to the State  
 (d) The property is divided among local community members

**Answer: (c)**

#### Descriptive Question

**Q.** What is the Doctrine of Escheat under Indian law? Explain its constitutional and legal basis. How does it safeguard public interest in cases of unclaimed or heirless property? [150 Words] [10 Marks]

## The DRAFT CIVIL DRONES (PROMOTION AND REGULATION) BILL 2025

**Why in News:** The Draft Civil Drone (Promotion & Regulation) Bill, 2025 is a proposed legislation by the Ministry of Civil Aviation (MoCA), which aims to replace the existing Drone Rules, 2021.

### Key Details

- It seeks to provide a more robust and comprehensive regulatory framework for civil drone / **unmanned aircraft systems (UAS)** in India.
- The draft also allows DGCA (Directorate General of Civil Aviation) chief, authorized officers or police to confiscate electronic devices, records or documents if drone rules are found violated.

### Scope of the bill

- It applies to various aspects of drone (UAS) usage: ownership, operation, design, manufacture, import, export, leasing, training, and maintenance.
- Exemptions:
  - ✓ Drones / UAS used by the armed forces and related security wings.
  - ✓ UAS weighing more than **500 kilograms** will not be under this Bill; they will fall under the **Bhartiya Vayuyan Adhiniyam, 2024** (which governs heavier aircraft).

### Regulatory Authority

- The Directorate General of Civil Aviation (DGCA) remains the primary regulator.
- There will be procedures for registration, licensing, certification, etc., governed by DGCA.

### Key features of the bill

- **Mandatory Registration & Identification:** Every drone needs a Unique Identification Number (UIN) from DGCA.
- **Type Certification:** Manufacturers must get DGCA approval (type certification) before manufacturing, selling, or operating drones.
- **Remote Pilot Certification:** Operators require a valid remote pilot certificate.
- **Digital Sky / Zoning System:** Airspace classification:
  - ✓ Green Zone (free to fly)
  - ✓ Yellow Zone (need ATC or relevant permissions)
  - ✓ Red Zone (central government permission / strict restrictions)

- **Safety, Security, Equipment Standards:** Mandatory safety features (anti-tampering, traceability, airworthiness) unless exempted.
- **Insurance & Liability/Compensation:** Third-party liability insurance requirement. Compensation guidelines e.g. approx. ₹2.5 lakh in case of death, approx. ₹1 lakh for grievous hurt.
- **Penalties & Enforcement**
  - ✓ **Penalties for violations:** fines, imprisonment. Some provisions allow for up to 3 years' imprisonment for serious violations.
  - ✓ For lesser / first offences, shorter terms and lower fines.
  - ✓ **Powers of seizure:** DGCA, authorised officers, police can seize drones, documents, records etc.
- **Offence Types:**
  - ✓ **Violation** in restricted zones (yellow/red) made cognizable and non-compoundable offences.
  - ✓ Use of drones for dangerous goods or weaponization treated seriously.

#### Penalties/ Jail terms

- For willfully disobeying provisions: up to ₹50,000 fine or 3 month's imprisonment or both. For second or subsequent offence: fine up to ₹1 lakh, imprisonment up to 6 months.
- For serious offences (e.g. dangerous goods, restricted zones violations, etc.): jail up to 3 years, fine up to ₹1 lakh or both.

#### Concerns / Criticisms

- Industry feedback (e.g. Drone Federation of India) says that the Bill may roll back liberal features from Drone Rules, 2021 such as de-criminalisation, ease of compliance.
- Fear that stringent penalties, wide discretion for authorities (seizure, detention, etc.) might discourage innovation / startups.
- Concerns about ambiguity in some provisions: what counts as safety/security features, what constitutes "serious" violation, clarity on exemptions, etc.
- Consultation period considered short; may not allow adequate inputs from all stakeholders.

#### Significance

- If enacted, this Bill could shape India's trajectory to being a global drone hub by providing clearer legal foundations.
- Enhances regulatory oversight: ensuring safety, security, privacy, and airspace management.
- Balances commercial & recreational use with national security concerns.
- Brings in accountability, insurance, liability mechanisms for harm caused by drones.

#### Way Forward

- **Wider Stakeholder Consultations:** Involve drone startups, industry bodies, academic experts, and security agencies before finalising the bill to ensure it is balanced, practical, and forward-looking.

- **Clear Definition of Offences and Penalties:** Avoid ambiguity in terms like "serious violations"; ensure proportionality in punishments to prevent criminalising innovation unintentionally.
- **Innovation-Security Balance:** Encourage R&D and startup activity while building strong mechanisms for national security, especially in border and sensitive zones.
- **Robust Grievance Redressal Mechanism:** Create an independent appellate body to deal with wrongful seizure, licensing issues, or overreach by authorities.
- **Gradual Implementation and Capacity Building:** Ensure DGCA, police, and other enforcement bodies are equipped and trained to implement provisions without harassment or delays.
- **Alignment with Global Best Practices:** Align with ICAO (International Civil Aviation Organization) and other international norms to promote interoperability and drone exports.
- **Strengthen Digital Infrastructure:** Expand and upgrade the Digital Sky platform to enable real-time zoning, registration, and flight permissions with minimal human interference.

#### Conclusion

The Draft Civil Drone Bill, 2025 is a step towards safe and regulated drone use in India. However, to realise the sector's full potential, the law must strike a balance between innovation and regulation. A consultative, clear, and forward-looking framework will be key to making India a global drone hub.

## MINES AND MINERALS (DEVELOPMENT AND REGULATION) AMENDMENT BILL 2025

**Why in News:** The Mines and Minerals (Development and Regulation) Amendment Bill, 2025 has been passed by Parliament (Lok Sabha + Rajya Sabha) seeking to amend the Mines and Minerals (Development and Regulation) Act, 1957.

#### Key features of the amended bill

- Under the Act, a mining lease is granted for a specific mineral.
- The Bill provides that leaseholders can now apply to state governments to add other minerals in an existing lease.
- **For critical and strategic minerals, and other specified minerals,** the leaseholder need not pay any additional amount to include them. Examples include lithium, graphite, nickel, cobalt, gold, silver.
- The Bill expands the role of the **National Mineral Exploration Trust:** besides funding mineral exploration, it can also fund development of mines and minerals.
- The Bill **also removes the limit on sale of minerals** from captive mines (previously, after fulfilling end-use demands, up to 50% of production could be sold).
- The Bill mandates the establishment of an authority to register and regulate mineral exchanges.

- The Coal & Mines Minister said these changes are “revolutionary reforms” in the mining sector, and claimed that states have received ~₹6,85,000 crore due to transparent allocations, up from ₹68,000 crore ten years ago.
- The government says it has identified **24 critical minerals** and allocated ₹32,000 crore to the National Critical Mineral Mission.
- List of 24 critical minerals:**
  - Beryl and other beryllium-bearing minerals
  - Cadmium-bearing minerals
  - Cobalt-bearing minerals
  - Gallium-bearing minerals
  - Glauconite
  - Graphite
  - Indium-bearing minerals
  - Lithium-bearing minerals
  - Molybdenum bearing minerals
  - Nickel-bearing minerals
  - Niobium-bearing minerals
  - Phosphate (without Uranium)
  - Platinum-group elements bearing minerals
  - Potash
  - Minerals of the “rare earths” group not containing Uranium and Thorium
  - Rhenium-bearing minerals
  - Selenium-bearing minerals
  - Tantalum-bearing minerals
  - Tellurium-bearing minerals
  - Tin-bearing minerals
  - Titanium-bearing minerals and ores (ilmenite, rutile, leucoxene)
  - Tungsten-bearing minerals
  - Vanadium-bearing minerals
  - Zirconium-bearing minerals and ores including zircon

### Critical Vs. Strategic Vs. Specified Minerals

Critical Minerals	Strategic Minerals	Other Specified Minerals
<b>Definition:</b> Critical minerals are non-fuel minerals or mineral materials essential to the economy and whose supply chain is vulnerable to disruption. These minerals are vital for high-tech industries, defense,	<b>Definition:</b> Strategic minerals are those minerals that are <b>essential for a nation’s defense and economic security</b> , particularly during times of war or national emergency.	<b>Definition:</b> This is a broad and context-dependent category, often referring to minerals officially designated by a government or organization for specific purposes such as industrial development, trade regulation, or resource

renewable energy, and advanced manufacturing		planning. These are not necessarily "critical" or "strategic" but are still important for economic or sectoral development.
<b>Characteristics</b> ✓ Essential for key industries (e.g., aerospace, electronics, clean energy) ✓ Supply risk due to geopolitical, economic, or environmental factors ✓ Limited or concentrated global production	<b>Characteristics:</b> ✓ Critical for military applications (e.g., weapon systems, aircraft, communication) ✓ Stockpiled by governments to ensure availability during conflict or supply disruption ✓ Overlaps with critical minerals, but with stronger emphasis on defense needs	<b>Characteristics:</b> ✓ Specified based on national interests, policy, or sectoral demand ✓ May include bulk minerals or other industrial materials not on critical/strategic lists
<b>Examples:</b> Lithium, cobalt, rare earth elements, graphite, nickel	<b>Examples:</b> Titanium, beryllium, tungsten, rare earth elements (some overlap with critical minerals)	<b>Examples:</b> Bauxite, limestone, phosphate, gypsum

### Key implications and possible effects

- Lease flexibility:** Leaseholders can expand the scope of their operations by including more minerals under the same lease, which may reduce the administrative / transaction cost of obtaining fresh leases.
- No extra payment for critical minerals:** This is meant to encourage exploration and exploitation of minerals deemed strategic (like lithium, cobalt) by reducing upfront cost barriers.
- Funding & development push:** By allowing the National Mineral Exploration Trust to fund mine development, there

is greater state-level support for ramping up mining infrastructure.

- **Market liberalization:** Removing the 50% limit for captive mines to sell production opens up more opportunities for commercial sale and market participation.
- **Mineral exchanges:** A regulated exchange for minerals can improve price discovery, transparency, and reduce monopolistic practices or opaque deal-making.
- **Strategic independence / critical minerals:** This aligns with national goals of mineral sovereignty, especially for minerals needed in technologies (battery, EV, electronics).

**Potential risks**

- **Environmental impacts:** Expansion into new minerals could lead to more land disturbance, ecological impact, and need for stronger regulatory oversight.
- **State-level capacity:** The effectiveness depends on state governments' administrative capacity, clarity in guidelines, and enforcement.
- **Disputes or valuation issues:** Even though additional payment is waived for critical minerals, valuation, royalty, or revenue sharing may become contentious.
- **Market volatility:** If mineral exchanges are open, there will be risk from price volatility; safeguards will be needed to protect small stakeholders.

- **Critical Mineral Strategy:** Align exploration and extraction with the National Critical Minerals Mission for long-term self-reliance.

**THE IMMIGRATION AND FOREIGNERS ACT, 2025**

**Why in News:** The union government has notified various rules and orders under the Immigration and Foreigners Act, 2025, which came into effect on September 1.

**Key Details**

- The Immigration and Foreigners Bill, 2025 was introduced in Parliament to consolidate, modernize, and replace several older laws governing immigration and foreigners in India.
- Upon its commencement, it repealed the following four prior legislations:
  - ✓ The Passport (Entry into India) Act, 1920
  - ✓ The Registration of Foreigners Act, 1939
  - ✓ The Foreigners Act, 1946
  - ✓ The Immigration (Carriers' Liability) Act, 2000
- The new Act is intended as a comprehensive legal framework governing immigration, visa regime, foreign nationals' stay, and related controls.

**National Mineral Exploration Trust (NMET)**

- The NMET is an Indian government-established trust aimed at boosting mineral exploration across the country.
- **Established by:** Ministry of Mines, Government of India
- **Under:** Section 9C of the Mines and Minerals (Development and Regulation) Act (MMDR Act), 1957
- **Year Established:** 2015
- **Objective:** To fund and promote mineral exploration in India, especially for non-coal and non-fuel minerals.

**Key Functions:**

- **Funding Exploration:** Provides financial support for regional and detailed exploration. Also, encourages private and public sector participation.
- **Promoting Technology:** Supports the use of advanced exploration technologies and methods.
- **Strengthening Geological Data:** Helps generate and improve baseline geoscientific data for better mineral targeting.
- **Capacity Building:** Supports training and institutional capacity building for exploration professionals.

**Key features of the act**

Features	Changes	Significance/ Issues
<b>Possession of valid documents</b>	Foreign entrants must have valid passports or travel documents and a valid visa, unless explicitly exempted by the central government.	Closes loopholes or uncertainties in prior fragmented laws; but exemptions become critically important.
<b>Designated immigration posts</b>	The Act lists which airports, seaports, land border posts, rail posts are legally permitted for foreign entry/exit.	Prevents random/undesigned crossings. Enforces stricter control.
<b>Powers of immigration officers</b>	At these notified posts, immigration officers decide admissibility, can refuse entry / exit on national security grounds.	Enhances discretion at point of entry, with implications for due process.
<b>Registration and control mechanism</b>	Foreigners must register with designated Registration Officers. Local authority (e.g., District SP / DCP) is made "local civil authority" for immigration and foreigners' regulation. A network of Foreigners' Regional Registration	More formal structure, clearer hierarchy of responsibilities.

**Way Forward**

- **Clear Guidelines:** Centre and states must issue transparent rules for adding minerals to leases, ensuring consistency and quick approvals.
- **Environmental Safeguards:** Strengthen environmental checks to balance mineral expansion with sustainability.
- **Capacity Building:** Equip state mining departments with resources and training to implement reforms effectively.
- **Digital Mineral Exchange:** Fast-track the setup of a tech-driven, transparent mineral trading platform.

	Officers (FRROs) has specified powers.	
<b>Obligations on accommodation provides/institutions</b>	Hotels, hostels, PGs, religious institutions must collect foreigner details, thumb impressions, and electronically submit them within 24 hours at arrival and departure.	Places compliance burden on private actors; risk of privacy and data protection issues.
<b>Notifications by universities/hospitals</b>	Universities/medical institutions must notify registration officers about foreigners admitted or treated. Hospitals must report births/deaths of foreigners within 7 days.	Expands oversight of foreigners' presence inside India beyond borders.
<b>Power to shut down premises/restrict operations</b>	Civil authority can control or shut down resorts, clubs, or places frequented by foreigners if security or public order concerns arise.	Gives authorities leverage over commercial or social spaces associated with foreigners.
<b>Special permits for protected/restricted areas</b>	Entry to protected, restricted, or prohibited areas requires an explicit permit via online systems.	Strengthens internal geographic control of movement of foreigners.
<b>Exempted categories</b>	<p>The law explicitly exempts or provides special treatment to:</p> <ul style="list-style-type: none"> <li>• Indian military and their families in government transport</li> <li>• Citizens of Nepal / Bhutan (with certain conditions)</li> <li>• Tibetan refugees (subject to registration)</li> <li>• Minority community refugees from Afghanistan, Bangladesh, Pakistan (Hindu, Sikh, Buddhist, Jain, Parsi, Christian) who entered India on or before December 31, 2024</li> <li>• Registered Sri Lankan Tamils who sheltered until Jan 9, 2015</li> <li>• Holders of diplomatic / official passports where visa waiver agreements apply</li> </ul>	These exemptions are politically sensitive, especially those tied to religious minorities, and may be contested in courts or in public debate.

	<ul style="list-style-type: none"> <li>• Foreign military personnel aboard warships (unless excluded)</li> </ul>	
<b>Digital/electronic records</b>	Emphasis on digital notifications, portal / mobile app reporting to maintain a robust database for enforcement and decision-making.	Moves administration toward data-driven management, but raises questions of privacy, data security, and oversight.
<b>Graduated fines/compounding system</b>	Violations (overstay, failure to register, breach visa terms, unauthorized entry to protected areas, failure to notify) carry fines from ₹10,000 up to ₹5 lakh. For some classes (Tibetans, certain nationals) fines can be as low as ₹50.	Providing a compounding mechanism can reduce court burdens, but fines may disproportionately affect less affluent foreigners.
<b>Centralization/delegation</b>	The central government can delegate or modify functions, issue general or special directions; local discretionary exemptions are curtailed—local authorities must act per central orders.	Greater central control; reduces variability across states/districts.
<b>No local exemptions by discretion</b>	All exemptions or special permissions must stem from central government orders, not local authority's discretionary judgments.	Seeks uniformity, but may reduce flexibility to account for local circumstances.

### Key Implications, Concerns & Open Questions

- **Legal clarity vs. rigidity:** The Act aims to reduce ambiguity by consolidating older Acts and laying down explicit rules. But since many powers are centralized and local discretion is limited, there may be tensions when local conditions suggest special handling.
- **Enforcement vs. rights protections:** Expanding powers of immigration officers, shutting down premises, refusal of entry, etc., raise concerns about procedural safeguards, transparency, review mechanisms, and protection of rights (especially of vulnerable foreigners).
- **Data, privacy, surveillance:** The requirement for electronic reporting, thumb impressions, institutional notifications, etc., entails collection of personal data at a scale, which may raise issues of misuse, leaks, oversight, and data protection (especially given India's evolving data protection regime).
- **Religious / minority-linked exemptions:** The act carves out special relief for minorities from Afghanistan, Pakistan, Bangladesh who entered India by December 31, 2024. This is politically sensitive since it overlaps with

debates around the Citizenship (Amendment) Act and what counts as valid entry, refugee status, and rights of different categories of migrants.

- **Discretion and appeal mechanisms:** For fines, refusals, etc., the law provides “appeals” and exceptions for bona fide mistakes, but how strong or accessible these mechanisms are will be tested in practice.
- **Implementation challenges:**
  - ✓ Capacity of local authorities, FRROs, data systems, training, audit, etc.
  - ✓ Ensuring that institutions like hospitals, universities, and accommodation providers can comply without undue burden
  - ✓ Avoiding misuse of powers (for harassment or profiling)
  - ✓ Monitoring consistent application across states/districts.
- **Judicial scrutiny:** Because the law impacts fundamental rights (e.g., freedom of movement, equality before law), its provisions may be challenged in courts. The exemptions and differential treatment (especially based on religion/nationality) could face constitutional review.

### Way Forward

Ensure robust implementation with transparency, independent oversight, data protection safeguards, and accessible grievance redressal. Clarify exemption criteria and balance national security with humanitarian considerations.

### Conclusion

The Immigration and Foreigners Act, 2025 marks a significant overhaul of India’s immigration regime, aiming for stricter control, digital governance, and clarity. However, its centralization, surveillance measures, and selective exemptions raise concerns over rights, transparency, and fairness.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQs

Q. Which of the following statements about the Immigration and Foreigners Act, 2025 is/are correct?

1. It consolidates and replaces four previous laws, including the Foreigners Act, 1946.
2. It allows local authorities to independently exempt foreigners from certain rules.
3. It mandates digital registration and reporting of foreigner details by institutions like hotels and universities.
4. It grants exemption to minority community refugees from Pakistan, Afghanistan, and Bangladesh who entered India before December 31, 2024.

Select the correct option:

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

**Answer: (b)**

### Descriptive Question

Q. Critically examine the key provisions of the Immigration and Foreigners Act, 2025 in light of national security, administrative efficiency, and human rights concerns. [150 Words] [10 Marks]

### PERSONALISED ADAPTIVE LEARNING (PAL)

**Why in News:** The Nobel Laureate and economists Michael Kremer released findings of a study on use of personalized adaptive learning (PAL) software, an EdTech tool for class 6-9 students in over 1200 government schools in Andhra Pradesh.

#### Key Details

- The study compared schools that used PAL with those that didn’t. The result: learning rates doubled on average among students who used PAL.
- Students who started at a lower level (weaker students), girls, and those in lower grades appeared to benefit more from PAL.

#### About PAL

- Personalised Adaptive Learning (PAL) is an educational approach that uses technology to tailor learning experiences to the unique needs, skills, and interests of each individual student.
- It adapts content, pace, and learning paths in real-time based on continuous assessment and feedback, aiming to optimize learning outcomes and engagement.
- PAL has been used in government schools in states like Rajasthan, Uttar Pradesh, Telangana, besides Andhra Pradesh.
- A study in Rajasthan: 40 government schools, approx. 6,500 students; after 18 months PAL improved learning outcomes in Math and Hindi. But interestingly, these improvements didn’t always translate into better performance in regular school exams.
- In Delhi, after-school PAL sessions for 619 students also led to higher scores in Math and Hindi, especially for weaker students. But again, improvements in school exams were mixed: better in Hindi, not always in Math.

#### Key components of PAL

- **Personalization:**
  - ✓ Tailors learning paths to individual student profiles (interests, goals, learning styles).
  - ✓ Can incorporate student choice and voice into content and pace.
- **Adaptivity:**
  - ✓ Uses algorithms and data analytics to adjust learning in real time.
  - ✓ Continuously assesses performance and dynamically modifies the learning experience.
- **Data-Driven Insights:**
  - ✓ Collects data from learner interactions to identify strengths, gaps, and progress.
  - ✓ Provides teachers and learners with actionable feedback.

- **Technology-Enabled Platforms:**
  - ✓ Often uses AI or machine learning in Learning Management Systems (LMS) or Intelligent Tutoring Systems (ITS).
  - ✓ Examples include platforms like DreamBox, Knewton, Smart Sparrow, and Khan Academy.

### Goals of PAL

- Maximize learning efficiency by providing the right content at the right time.
- Improve student engagement through relevant, challenging, and interactive content.
- Support all learners, including those who are behind or ahead of grade level.
- Enable teachers to focus more on mentoring and less on manual differentiation.

### Benefits of PAL

- ✓ Supports individual learning needs.
- ✓ Promotes self-paced learning.
- ✓ Reduces learning gaps more effectively.
- ✓ Gives teachers better insight into student progress.

### Challenges

- **Hardware & Infrastructure:** Procuring devices (tablets/computers), keeping them in working condition / replacing when broken. Also, many schools still lack basic facilities: ~63.5% schools have internet; ~65% have computers.
- **Teacher Training & Buy-in:** The tech tool isn't a substitute for teachers. It works better when teachers are trained to use the data it generates, and to blend these tools into their teaching.
- **Alignment with Exams:** Even when learning improves, standard school exams often don't capture or reward those improvements, especially if students are learning material below grade level. So, there's sometimes little change in exam scores.

### Implications

- PAL seems to be quite promising, especially for helping weaker students (bridging gaps).
- But for its full impact to be realised, schools need good infrastructure + teachers who can use adaptive tools well.
- Also, there may be a need to rethink assessment strategies/exams so they better align with what students are actually learning, especially for

### Way Forward

- **Targeted Rollout:**
  - ✓ Focus on Grades 6-8, low-performing schools
  - ✓ Start with Math, expand later
- **Infrastructure with Accountability:**
  - ✓ Durable tablets + local maintenance
  - ✓ Track usage & learning via dashboards
- **Empower Teachers:**
  - ✓ Train teachers to use PAL data, not just the tool

- ✓ Reward high engagement and impact
- **Smarter Assessments:**
  - ✓ Add competency-based tests
  - ✓ Align assessments with actual learning levels
- **Monitor & Improve:**
  - ✓ Independent impact evaluations yearly
  - ✓ Use findings to adapt policy
- **Equity First:**
  - ✓ Ensure access for girls, rural, & marginalised students
  - ✓ Design for inclusivity (language, disability)

### Conclusion

PAL has shown strong potential to boost learning, especially for students who are falling behind. But technology alone isn't enough. With the right infrastructure, teacher support, smart assessments, and a focus on equity, PAL can be a powerful tool to close learning gaps and build a more inclusive education system.

### Annual Status of Education Report (ASER) 2024

- **Enrollment & Schooling Trends**
  - ✓ Among children aged 6–14, overall school enrollment stood at 98.1% in 2024, nearly matching the 98.4% in 2022.
  - ✓ Government school enrollment (for 6–14 yrs) has declined slightly from the pandemic peak: it was 72.9% in 2022, but fell to 66.8% by 2024.
  - ✓ In the pre-primary age group (3–5 yrs), more than 80% of children are enrolled in some form of early childhood institution (e.g., LKG/UKG, Anganwadi, Pre-School) in 2024.
  - ✓ The share of “underage” children (age ≤ 5) entering Grade I has declined over the years:
    - 2018: ~ 25.6%
    - 2022: ~ 22.7%
    - 2024: ~ 16.7% (the lowest ever)
- **Learning Outcomes – Reading & Arithmetic**

One of the key emphases of ASER is measuring foundational skills (reading, arithmetic). The 2024 report shows signs of recovery from pandemic-induced learning losses, with especially strong gains in government schools.

Reading/ Fluency	Arithmetic/ Numeracy
<ul style="list-style-type: none"> <li>• Class III students in government schools who can read a Class II textbook: <ul style="list-style-type: none"> <li>✓ 2022: 16.3%</li> <li>✓ 2024: 23.4%</li> </ul> </li> <li>• All schools (govt + private): <ul style="list-style-type: none"> <li>✓ 2022: 20.5% of Class III children could read a Class II level text</li> <li>✓ 2024: 27.1%</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Class III students able to do at least one subtraction problem: <ul style="list-style-type: none"> <li>✓ 2018: ~28.2%</li> <li>✓ 2022: 25.9% (dip)</li> <li>✓ 2024: 33.7%</li> </ul> </li> <li>• Class V students able to do division problems: <ul style="list-style-type: none"> <li>✓ 2018: ~27.9%</li> <li>✓ 2022: 25.6%</li> <li>✓ 2024: 30.7%</li> </ul> </li> <li>• Class VII students (basic arithmetic,</li> </ul>

## ENVIRONMENT AUDIT RULES 2025

**Why in News:** The Ministry of Environment, Forest and Climate Change has implemented the Environment Audit Rules (EAR) 2025, which extend the essential functions of environmental monitoring and auditing beyond the jurisdiction of State Pollution Control Boards.

### Other highlights

- These rules will primarily assess the compliance of industrial units with environmental regulations.
- Currently, the overall structure for monitoring and compliance within the existing environmental framework is backed by the Central Pollution Control Board, the Regional Offices of the Environment Ministry, and the State Pollution Control Boards/Pollution Control Committees.

### About EAR, 2025

- These rules allow private, accredited auditors (much like chartered accountants) to evaluate whether projects and industries comply with environmental laws.
- The goal is to strengthen monitoring and compliance by supplementing the capacities of regulatory authorities (CPCB, SPCBs, regional offices), which are facing deficits in manpower, infrastructure, technical capacity.
- Audits will also connect with newer regulatory schemes like the Green Credit Rules, meaning environmental performance (e.g. afforestation, sustainable water/waste management) can earn tradeable credits.
- Direct & indirect carbon emissions accounting are expected to become part of the compliance framework.

### The rules aim to:

- Encourage internal, self-compliance and proactive monitoring.
- Improve transparency, accountability, and credibility in environmental audits.
- Provide a reliable data foundation for enforcement, green finance, ESG, and climate policy decisions.

### Background

- The Environment Audit Rules, 2025 are notified to create a structured, independent audit system for projects, processes and activities that affect the environment.
- They are intended to supplement (not replace) the existing environmental compliance and monitoring by bodies like CPCB (Central Pollution Control Board), state pollution control boards, and regional offices of the Ministry.

### Features/ Components/ Provisions of the Rules

- **Establishment of EADA (Environment Audit Designated Agency):** A central agency to certify, register, monitor, and discipline environment auditors; maintain online registry; capacity building.
- **Certification of Auditors:** Two pathways- Recognition of Prior: Learning (for experienced professionals) and National Certification Examination (for new entrants).

✓ The pre-pandemic level (2018) was ~27.3%	broader set of problems)
• <b>Class V:</b>	✓ 2018: ~44.1%
✓ Percentage who can read a Class II text increased from 42.8% in 2022 to 48.7% in 2024	✓ 2022: ~44.7%
✓ However, this is still below the 2018 figure of ~50.4%	✓ 2024: ~45.8%

### State & Sector Trends & Highlights

- ✓ In many states (except Jammu & Kashmir and Nagaland), Class III learning levels in 2024 have recovered relative to 2022.
- ✓ States such as Haryana, Himachal Pradesh, Uttarakhand, Maharashtra, Odisha, Uttar Pradesh recorded ~10 percentage point rise in reading levels (Class III) between 2022 and 2024.
- ✓ Uttar Pradesh stands out:
  - In government schools, reading levels rose from ~12.3% in 2018 to ~27.9% in 2024 — a 15-point jump.
  - Arithmetic levels in UP (government + private) also increased: from 26.9% in 2018 to 40.7% in 2024.
  - The learning recovery has been stronger in government schools than in private schools.
  - But despite gains: about 30% of children across ages still cannot read a Class II level text a persistent challenge.

### Digital Access & Usage (for older children)

- ✓ For the first time, ASER 2024 includes representative estimates of digital access, usage, and skills for children aged 14–16.
- ✓ One headline: almost 90% of girls and boys report having a smartphone at home.

However, usage for educational purposes is lower: only 57% of teens in that age group use the smartphone for educational reasons.

## EXPECTED QUESTION FOR UPSC CSE

### Prelims MCQs

Q. Which of the following best describes a key finding from the study on Personalised Adaptive Learning (PAL) in Andhra Pradesh government schools?

- (a) PAL improved school infrastructure but had no effect on student learning outcomes.
- (b) PAL doubled student learning rates, especially benefiting weaker students and girls.
- (c) PAL completely replaced teachers with adaptive software.
- (d) PAL showed strong exam score improvements but failed to track actual learning levels.

**Answer: (b)**

- **Registration & Validity:** Certified auditors must register with EADA; registration valid for five years, renewable.
- **Roles & Powers of Registered Environment Auditors (REAs):** REAs can-
  - ✓ Visit sites, collect samples, access documents and records.
  - ✓ Audit compliance with environmental clearance conditions, pollution control norms, waste-management rules, etc.
  - ✓ Compute environmental compensation for non-compliance.
  - ✓ Verify data, challenge self-reporting, review pollution control systems.
- **Assignment of Audit Work:** Auditors are assigned to projects via a randomized digital assignment approach to reduce conflict of interest.
- **Code of Conduct & Conflict of Interest:** Auditors must maintain independence, confidentiality, avoid conflicts of interest. Misconduct may lead to suspension or cancellation of their registration.
- **Oversight & Steering Committee:** A Steering Committee (chaired by an Additional Secretary in MoEFCC) will oversee implementation, propose modifications, guide EADA and monitor performance.
- **Powers of the Government/Ministry:** The Ministry retains power to issue further guidelines, resolve disputes, and mandate additional audits as needed.

#### Scope & Application

- The Rules apply to projects, processes, or activities that have environmental implications under India's environmental laws (e.g., Environment (Protection) Act, pollution control, waste, EIA, forest, etc.).
- Only those audits conducted by Registered Environment Auditors are recognized under the new regime.
- Auditors will assist in verifying compliance for:
  - ✓ Environmental clearance and consent conditions.
  - ✓ Pollution control, waste management rules.
  - ✓ Green Credit, Ecomark, and other environment-policy instruments.

#### Challenges

- **Independence & Conflicts of Interest:** If auditors are too closely tied to project proponents, the audit may lose credibility. Random assignment and conflict rules help but enforcement is critical.
- **Capacity & Quality of Auditors:** Ensuring sufficient numbers of technically competent auditors, and that their reports are reliable, will be a significant challenge.
- **Enforcement & follow through:** Audit findings are useful only if regulatory bodies act on them penalty, remediation, closure of gaps. Without follow-through, audits may remain symbolic.
- **Transparency & Public Access:** For public trust, the audit results or summaries ideally should be disclosed. As of now, mandatory open disclosure is not uniformly mandated.

- **Overlap & Coordination:** Coordination with existing compliance systems (CPCB, SPCBs) is necessary to avoid duplication, conflicts or jurisdictional confusion.
- **Resource & Institutional Constraints:** Without adequate staffing, funding, technical infrastructure (labs, data systems), the audit regime may be constrained in effectiveness.

#### Way Forward

- **Strong Oversight:** Set up an independent audit regulator to monitor, accredit, and penalize auditors.
- **Local Capacity Building:** Train local bodies to interpret and act on audit findings. Empower district/panchayat-level enforcement.
- **Transparency & Public Access:** Make audit reports public through an online portal.
- **Supplement, Not Replace Regulators:** Keep CPCB/SPCB inspections active—auditors are support, not substitutes.
- **Phased Rollout & Risk Focus:** Start with high-pollution sectors; adopt risk-based frequency.
- **Use Tech & Training:** Integrate remote sensors, AI tools; certify auditors through reputed institutions.
- **Link to Incentives, Guard Against Greenwashing:** Tie audit results to green credits, but enforce strict checks.
- **Legal Backing & Penalties:** Amend laws to penalize false audits and enforce compliance.

**EXPECTED QUESTION FOR UPSC CSE**

**Descriptive Question**

Q. In the context of India's environmental regulatory framework, discuss the role of private environment auditors introduced under the Environment Audit Rules, 2025. How can their involvement improve compliance, and what safeguards are necessary to prevent conflicts of interest and ensure accountability? [250 Words] [15 Marks]

#### RIGHT TO EDUCATION AND MINORITY EDUCATIONAL INSTITUTIONS

**Why in News:** The Supreme Court referred to a larger bench the question of whether minority educational institutions are entirely exempt from the purview of the Right to Education (RTE) Act, 2009.

#### Key Details

- A Two-bench of justices made the reference in a judgment based on a batch of civil appeals questioning school education departments' insistence on faculty clearing the Teachers Eligibility Test (TET) in minority institutions.
- The reference arises from concerns regarding a **2014 verdict** by the Constitution Bench in the **Pramati Educational and Cultural Trust case**. In this case, a five-judge Bench was evaluating the constitutionality of **Section 12(1)(c) of the Right to Education Act**.
- This provision requires educational institutions to **allocate 25% of seats for children** from disadvantaged

groups and weaker sections at the entry level to promote social inclusion in elementary education.

- Nevertheless, the 2014 ruling determined that Section 12(1)(c) infringed upon the minority status of these institutions and affected their institutional autonomy. Consequently, the Constitution Bench excluded minority institutions entirely from the scope of the RTE law.

### Background

- The Right to Education (RTE) Act, 2009, requires all schools (including private) to reserve 25% seats for underprivileged children and provide free elementary education.
- Minority-run educational institutions claim exemption from some RTE provisions under Article 30(1), which protects their right to establish and manage their own schools.
- The 2014 Pramati ruling upheld this exemption for minority institutions.
- This ruling sparked debate on balancing minority rights with inclusive education.
- The current court bench is concerned that such exemptions may:
  - ✓ Weaken equitable education principles.
  - ✓ Lead to uneven schooling standards.
  - ✓ Allow minority institutions to skip providing trained teachers, proper infrastructure, and free education to disadvantaged children.

### RTE & Minority Educational Institutions

Right to Education Act, 2009	Minority Educational Institutions
<ul style="list-style-type: none"> <li>• <b>Full name:</b> The Right of Children to Free and Compulsory Education Act, 2009.</li> <li>• <b>Purpose:</b> To provide free and compulsory education to all children aged 6 to 14 years.</li> <li>• <b>Key provisions:</b> <ul style="list-style-type: none"> <li>✓ Free education in government schools and in private schools for disadvantaged groups (25% reservation).</li> <li>✓ No child can be held back, expelled, or required to pay fees until completion of elementary education.</li> <li>✓ Schools must meet certain infrastructure and teacher qualification standards.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Definition:</b> Educational institutions established and administered by religious or linguistic minorities.</li> <li>• <b>Protection:</b> Article 30 of the Indian Constitution gives minorities the right to establish and administer their own educational institutions.</li> <li>• <b>Objective:</b> To preserve their culture, language, and religion through education.</li> <li>• <b>Autonomy:</b> Minority institutions have the right to manage their affairs without undue interference from the state.</li> </ul>

<ul style="list-style-type: none"> <li>• <b>Implementation:</b> Makes education a fundamental right under Article 21A of the Constitution of India.</li> </ul>	
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### Issues referred to the larger bench

The Supreme Court has formulated four key questions to be examined by the larger bench:

- **Reconsideration of the 2014 Pramati Judgment:** Whether the earlier exemption of minority-run schools from the RTE Act’s provisions requires re-evaluation in light of current educational and constitutional priorities.
- **RTE Act’s Impact on Minority Rights:** Whether the RTE Act infringes on the rights of minorities under Article 30(1), and whether Section 12(1)(c) of the Act should be interpreted to include children from minority communities who belong to weaker and disadvantaged sections.
- **Consideration of Article 29(2):** The effect of the previous judgment not factoring in Article 29(2), which safeguards cultural and educational rights of minorities and ensures no discrimination against minority students.
- **Constitutionality of RTE Provisions:** Whether the absence of a broader constitutional analysis of the RTE Act’s provisions warrants declaring the entire Act ultra vires (beyond the powers) with respect to minority rights.

### Broader Implications

- The Supreme Court is re-evaluating how to balance the right to education with minority constitutional protections.
- The decision may affect millions of children in minority-run schools, impacting admissions, reservations, and school management.
- Education experts and activists support the review to ensure universal, free, quality elementary education for all children.
- Minority groups worry that strict RTE enforcement could limit their constitutional autonomy over school administration.

### Interim Status

- Until the larger bench rules, the Supreme Court mandates that RTE provisions apply to all schools, including minority-run ones.
- Minority institutions must continue following RTE requirements on reservations and free education for underprivileged children.

### Way Forward

A balanced approach is needed one that respects minority rights but also upholds the RTE Act’s goal of inclusive education. Collaboration between the judiciary, government, and minority communities will be key to creating policies that ensure equitable access without compromising constitutional protections.

### Conclusion

The Supreme Court’s referral highlights the challenge of balancing universal education with minority rights. The upcoming verdict will be crucial in defining how to protect minority institutions’ autonomy while ensuring all children have access to quality education.

# INTERNATIONAL RELATIONS

## LIPULEKH PASS ISSUE

**Why in News:** The Ministry of External Affairs rejected Nepal's claims over Lipulekh Pass, terming it “unjustified” and saying it is not supported by historical facts or evidence.

### Key Details

- India is open to “constructive interaction” with Nepal to resolve outstanding boundary issues through diplomacy and dialogue.
- India points out that border trade through Lipulekh had been going on since 1954, and had been disrupted only due to COVID-19 and other developments.
- India and China have agreed to re-open border trade through a few passes, including Lipulekh, Shipki La, and Nathu La.

### Background of the dispute

- Lipulekh Pass is a strategically important mountain pass located in the Himalayas, at the tri-junction of India, Nepal, and China (Tibet).
- Nepal has claimed that the Lipulekh Pass, along with the areas of Kalapani and Limpiyadhura, lie within its territory.
- Nepal asserts that these areas are part of its sovereign territory based on historical maps and treaties.
- India, however, maintains that the Lipulekh Pass and the road built up to it lie entirely within its territory.



### Importance of Lipulekh Pass

- **Strategic Location:** The pass is strategically significant for India's defense and border management, especially given its proximity to China.
- **Trade Route:** It serves as a critical trade route between India and China, facilitating economic exchange and maintaining regional connectivity.
- **Pilgrimage:** The Lipulekh Pass is part of the route for the **Kailash Mansarovar Yatra**, an important spiritual journey for many Hindus and Buddhists.

### Implications for Bilateral Relations

- **Strained diplomatic ties:** The dispute has caused a diplomatic rift between India and Nepal, with both countries lodging protests and issuing official statements rejecting the other's claims. Nepal perceives India's actions as encroachment and unilateralism, which can lead to distrust and reduced willingness to cooperate on other issues.
- **Impact on Regional Cooperation:** India and Nepal share strong cultural, economic, and strategic ties, including in regional forums like SAARC and BIMSTEC. Border disputes like Lipulekh can complicate collaboration on trade, security, and infrastructure projects.
- **Diplomatic Pressure and Mediation:** Nepal might seek greater international support or mediation in border disputes, possibly involving third-party countries or organizations. India prefers bilateral dialogue but could face pressure to manage the situation carefully to avoid internationalizing the dispute.
- **Security and Border Management Challenges:** The disputed area lies near sensitive borders with China, complicating India's security calculus.

### Possible solutions & way ahead

- ✓ Revive bilateral dialogue mechanism
- ✓ Set up a joint boundary commission
- ✓ Involve a Neutral Third-Party mediator (if both agreed)
- ✓ Promote confidence-building measures
- ✓ Delink development projects from the dispute
- ✓ Address nationalist sentiments responsibly
- ✓ Mutual recognition of strategic concerns

### Conclusion

It is crucial for both India and Nepal to engage in constructive dialogue to address the underlying issues and work towards a peaceful resolution. The Lipulekh Pass dispute highlights the challenges of managing border relations and the need for mutual respect and understanding between neighboring nations.

### EXPECTED QUESTION FOR UPSC CSE

#### Descriptive Question

Q. Discuss the key issues surrounding the Lipulekh Pass dispute between India and Nepal. What are its implications for bilateral relations, and how can the two countries resolve the matter diplomatically? [250 Words] [15 Marks]

## INDIA-CHINA ON GLOBAL AI GOVERNANCE

**Why in News:** Recently, China proposed the creation of a **World Artificial Intelligence Cooperation Organisation (WICO)**, aimed at fostering international cooperation on AI standards, ethics and safety.

## Key highlights

- India has expressed “cautious support” for global AI governance and collaboration, yet has refrained from officially joining WICO, indicating concerns regarding strategic autonomy and alignment.
- The issue is expected to feature in multilateral platforms like the Shanghai Cooperation Organisation (SCO) and the AI Impact Summit that India will host in February 2026.

## Global AI governance

- It refers to the development of international standards, norms and regulations governing the design, use, and deployment of AI technologies.
- Ensuring AI is used ethically, safely, transparently, and does not reinforce inequality, discrimination, or geopolitical imbalances.

## Need for Global AI Governance

- **Cross-Border Impact:** AI technologies operate globally, influencing economies, societies, and security beyond national borders. A unified governance framework is needed to manage these international effects.
- **Preventing AI Misuse and Harm:** Governance helps stop harmful uses like deepfakes or autonomous weapons.
- **Avoiding regulatory fragmentation:** Avoid conflicting national laws and regulatory gaps.
- **Ensuring ethical and fair use:** Promotes transparency, fairness, and human rights.
- **Equitable access and benefits:** Ensures all nations benefit from AI, not just a few.

## India’s position on Global AI governance

- Supports responsible, human-centric AI development.
- Advocates for inclusive, multilateral discussions rather than dominance by one country or bloc.
- Hosted the G20 Digital Economy Working Group (2023) and plans to host AI Impact Summit in 2026.

## China’s position

- Seeks to play a leadership role in global tech governance.
- Formed WICO to promote “inclusive and non-discriminatory” global cooperation.
- Has faced criticism for lack of transparency and ethical concerns regarding surveillance and AI misuse.

## India’s AI Vision

- India’s AI market is rapidly expanding, expected to reach \$8 billion by end of 2025, with an annual growth rate exceeding 40%.
- India envisions using AI as a force multiplier to:
  - ✓ Boost economic growth
  - ✓ Improve governance and public service delivery
  - ✓ Foster innovation and entrepreneurship
  - ✓ Address social challenges (health, education, agriculture, etc.)
  - ✓ Become a global hub for responsible AI

“India must leverage AI not only to solve problems of the Global South but also to shape global AI ethics and governance.” – **NITI Aayog**

## Key AI initiatives in India

- **National Strategy for Artificial Intelligence – #AIforAll (2018)**
  - ✓ Published by NITI Aayog
  - ✓ Focus areas: **Healthcare, Agriculture, Education, Smart Mobility, Infrastructure**
  - ✓ Aims to position India as a leader in inclusive, ethical AI adoption.
- **Responsible AI for Social Empowerment (RAISE) Summit**
  - ✓ Held in 2020.
  - ✓ Aimed at bringing together AI experts, policymakers, and industry.
  - ✓ Highlighted India’s commitment to ethical and inclusive AI development.
- **India AI Programme (2024)**
  - ✓ Launched as part of Digital India initiative.
  - ✓ Key components:
    - IndiaAI Compute Infrastructure: Building high-power computing capacity.
    - IndiaAI Innovation Centre: Supports AI research & startups.
    - IndiaAI Datasets Platform: For open and secure data access.
    - IndiaAI FutureSkills: AI skill development in partnership with MeitY, NSDC.
  - ✓ Envisions a public-private partnership model.
- **AI in Governance & Public Sector**
  - ✓ AI-powered grievance redressal (e.g., CPGRAMS enhancement).
  - ✓ AI in agriculture: Crop yield prediction, pest control, precision farming.
  - ✓ AI in healthcare: Disease diagnosis, eSanjeevani telemedicine.
  - ✓ AI in education: Adaptive learning platforms.
- **AI research & Startups**
  - ✓ INAI (Intel + Telangana Govt + IIT Hyderabad): Applied research in AI for healthcare and smart mobility.
  - ✓ Centre of Excellence in AI: Established in IITs, IIITs.
  - ✓ India’s AI startup ecosystem is growing rapidly (e.g., Wadhvani AI, Niramai, Staqu).

## India’s role in Global AI governance

- Advocates for human-centric, inclusive AI at **G20, UN, SCO**, etc.
- Avoids alignment with **China-led WICO**, but engages in multilateral discussions.
- Hosting **AI Impact Summit 2026** to lead Global South narrative on AI governance.

## Ethical AI & Regulation

- Principles outlined in NITI Aayog’s “Responsible AI” Report (2021): **Safety, Transparency, Accountability, Inclusiveness, Privacy**

- India is yet to enact a dedicated AI law, but regulatory frameworks are being shaped under: **Digital Personal Data Protection Act, 2023, Digital India Act (in progress)**

### Challenges

- ✓ Limited AI R&D investment compared to global leaders.
- ✓ Shortage of skilled professionals.
- ✓ Data privacy and algorithmic bias concerns.
- ✓ Weak industry-academia collaboration.
- ✓ Risk of AI misuse (deepfakes, surveillance) without robust regulation.

### Key issues in India-China collaboration on AI

- **Geopolitical Trust Deficit**
  - ✓ Border tensions (e.g., Galwan 2020) limit high-level strategic trust.
  - ✓ India sees Chinese tech dominance with caution (e.g., TikTok ban, Huawei restrictions).
- **Data Sovereignty & Privacy**
  - ✓ India is formulating its own data protection laws (e.g., Digital Personal Data Protection Act).
  - ✓ Collaboration with China could raise concerns over data sharing and surveillance.
- **Norm-Setting Leadership**
  - ✓ India aspires to be a norm-setter in Global South.
  - ✓ Joining WICO may compromise its independent leadership role.
- **Technological Capabilities Gap**
  - ✓ China is significantly ahead in AI patents, infrastructure, and research.
  - ✓ India may face asymmetry in joint AI frameworks.

### Way Forward

- **Maintain Strategic Autonomy**
  - ✓ Engage in AI governance dialogues without binding commitments.
  - ✓ Avoid alignment with any one bloc (China or Western).
- **Multilateral Engagement**
  - ✓ Use SCO, BRICS, G20, and UN platforms to promote inclusive global AI norms.
  - ✓ Advocate for open-source, ethical, and secure AI practices.
- **Build Domestic Strength**
  - ✓ Invest in AI R&D, skilling, regulatory capacity.
  - ✓ Implement strong data protection and AI accountability laws.
- **Launch Global South Initiatives**
  - ✓ Position India as a voice of the Global South in AI ethics, access, and fairness.
  - ✓ Use platforms like AI Impact Summit 2026 to rally like-minded countries.
- **Cautious Engagement with China**
  - ✓ Collaborate in areas of low political sensitivity (e.g., agriculture AI, climate tech).
  - ✓ Establish track II dialogues (academic or civil society level) for norm-building.

### EXPECTED QUESTION FOR UPSC CSE

#### Descriptive Question

Q. Discuss India's approach towards Artificial Intelligence (AI) development and deployment. What are the key initiatives undertaken to promote responsible AI, and what challenges must be addressed to realize India's vision of becoming a global AI hub? [250 Words] [15 Marks]

### INDIA'S GROWING ENGAGEMENT WITH GLOBAL SOUTH AND MULTILATERAL COOPERATION

**Why in News:** Under mounting economic pressure from the United States, India is recalibrating its international alignments, expanding trade partnerships beyond traditional partners.

#### Other highlight

- United Nations (UN) officials declared famine in Gaza, raising alarms over humanitarian catastrophe and the role of war in exacerbating starvation.

#### Why this matters now

- On 7<sup>th</sup> August, 2025, the U.S imposed a **25% tariff** on various Indian exports.
- A further 25% tariff targeting Indian imports of Russian oil takes effect on August 27<sup>th</sup>.
- These measures affect industries ranging from ready-made garments and chemicals to solar panels.
- Faced with the potential loss of competitiveness in the US market, India exporters and the government are seeking to diversify supply chains and trade partners.
- At the same time, food security in Gaza has deteriorated so badly that the UN's **Integrated Food Security Phase Classification (IPC)** has declared parts of Gaza city and its environs in a state of famine.
- Over half a million people are in **"Catastrophic"** conditions.

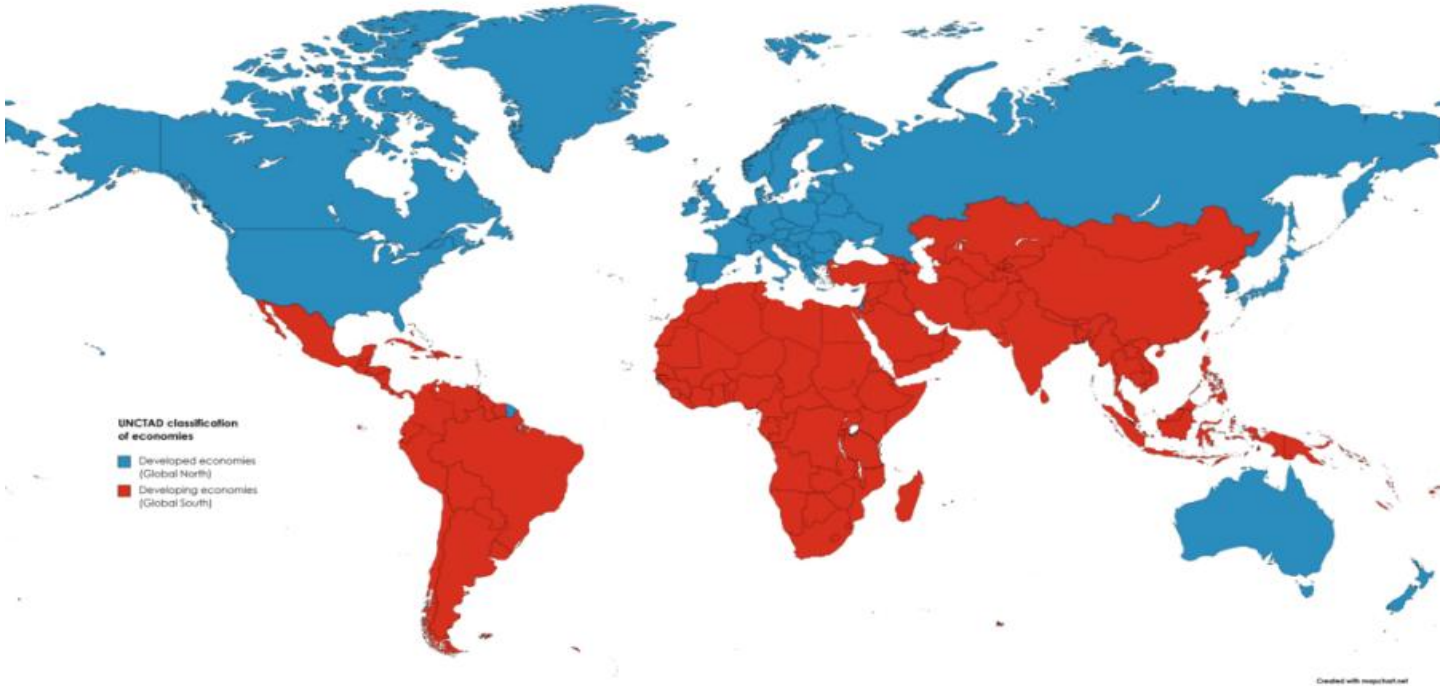
#### Trade Realignment & New Partnerships

- **EAEU Talks:**
  - ✓ India has initiated negotiations with the Eurasian Economic **Union (EAEU; Russia, Armenia, Belarus, Kazakhstan, Kyrgyzstan)**, whose combined GDP is about US\$ 6.5 trillion.
  - ✓ Trade turnover with the EAEU reached roughly US\$ 69 billion in 2024, about 7% higher than in 2023.
- **Russia as a Market:**
  - ✓ With U.S. tariffs squeezing traditional export channels, Indian exporters are increasingly looking to Russia for textiles, pharmaceuticals, engineering goods, and capitalising on its energy and investment potential.
- **Oil from Brazil:**
  - ✓ In the first half of 2025, oil imports from Brazil surged by about 75% year-on-year, from ~41,000 barrels per day to ~72,000 bpd. Brazil is emerging as an important **non-OPEC supplier**.

- **Challenges in Diversification:**

- ✓ However, logistical constraints, pricing competitiveness, distance, and established pipelines

and routes in West Asia still favour traditional suppliers.



**Organization of the Petroleum Exporting Countries (OPEC)**

- OPEC is an intergovernmental organization of oil-exporting countries that coordinates and unifies petroleum policies among its member nations to ensure:
  - ✓ Stable oil markets
  - ✓ Fair returns for producers
  - ✓ Regular supply to consumers
  - ✓ A steady income for investors
- Founded in 1960 in **Baghdad, Iraq**
- **Headquarters:** Vienna, Austria
- **Current Members (2025):** 13 countries- Algeria, Angola, Congo, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Saudi Arabia (de facto leader), United Arab Emirates (UAE), Venezuela
- Indonesia suspended its membership in 2016. Ecuador left in 2020. Qatar exited in 2019.

**Gaza: Humanitarian Disaster & Global responses**

- The IPC’s famine classification includes Gaza City and surrounding Governorate, describing conditions of “starvation, destitution and death.”
- Over 500,000 people face catastrophic food conditions, approx. 1.07 million are in “emergency” (Phase 4), while nearly 400,000 are in “crisis” (Phase 3) levels of food insecurity.
- Conflict, displacement, aid restrictions, and collapse of food systems are cited as “man-made” drivers of famine. Aid access remains heavily constrained.
- Israel has rejected a proposed 60-day ceasefire plan brokered by Egypt and Qatar, though accepted by Hamas, citing concerns over hostage release and disarmament obligations. The Israeli government asserts that military action is necessary to crush Hamas.

**Way Forward for India’s Foreign & Trade Policy**

- **Deepen Alternative Trade Agreements**
  - ✓ Finalising meaningful trade pacts with EAEU and Brazil to cushion the blow from U.S tariffs. Invest in infrastructure (ports, logistics) to reduce cost burdens.
- **Policy Support for Exporters**
  - ✓ Subsidies, incentives or insurance mechanisms for sectors most exposed (garments, chemicals, solar) to offset tariff-losses.
- **Risk-Assessment on Overdependence**
  - ✓ Balance is required so India does not become overly dependent on any single alternate partner at the cost of long-term sustainability or geopolitics.

**Addressing the Gaza Famine**

- Push for effective ceasefire and safe corridors to enable humanitarian aid; amplify diplomatic pressure on warring parties.
- Strengthen diplomatic coalitions & legal avenues to hold accountable those responsible for civilian harm or impeding aid—especially where international humanitarian law is implicated.
- Support global norms and forums enhancing protections for populations in war, and consider India’s role (bilateral or via UN) in relief operations or mediation.

**Conclusion**

India is navigating shifting global dynamics, responding to U.S. trade pressure by diversifying partners and engaging diplomatically with China. At the same time, the Gaza famine highlights the urgent need for humanitarian leadership. Balancing strategic interests with moral responsibility will define India’s evolving role on the global stage.

## EXPECTED QUESTION FOR UPSC CSE

### Prelims MCQ

Q. Recently, India has sought to strengthen ties with countries like China, Russia, and Brazil primarily because:

- (a). These countries offer military support to India
- (b). Trade talks with the U.S. have stalled and tariffs were imposed on Indian goods
- (c). India is moving away from multilateral trade frameworks.
- (d). These countries have invited India to join their regional defence pacts

**Answer: (b)**

## SAUDI-PAKISTAN SIGN “STRATEGIC MUTUAL DEFENCE” PACT

**Why in News:** Pakistani PM and Saudi Crown Prince signed a ‘Strategic Mutual Defence Agreement (SMDA)’ in Riyadh.

### Key Details

- Under the pact, any aggression against one country shall be considered aggression against both.
- It aims to deepen defence cooperation and strengthen joint deterrence in the region.
- The pact complicates India’s management of its Western neighbourhood, especially since it strengthens Pakistan’s position in the Islamic world.

### Components and Clauses

- The agreement formalizes defence cooperation: joint deterrence, military cooperation, presumably intelligence sharing, and coordination.
- Pakistan’s Foreign Office described the pact as purely defensive, asserting it’s not directed at any third country.
- Pakistani Defence Minister stated that Pakistan’s military capabilities—including its nuclear arsenal—could be “made available” under this pact if needed; though Pakistan still maintains that its nuclear doctrine is India-centric.

### Possible reasons for this pact

- **Rising regional tensions:** Recent Israeli air strikes (e.g., on Doha) elevated concerns in Gulf nations about security threats and reliability of traditional security guarantors.
- **Perceived uncertainties in U.S. guarantees:** Gulf states are seeking more diversified security partnerships given shifting dynamics.
- **Longstanding relationship between Saudi Arabia and Pakistan:** Ties in defence, financial support, oil, military training etc., which paved the way for formalizing this pact.

### Implications

- **Regional Security Dynamics**
  - ✓ The pact may alter power dynamics in the Persian Gulf and broader Middle East, especially given Pakistan’s nuclear status.
  - ✓ Some analysts consider it as creating a de facto nuclear umbrella arrangement for Saudi Arabia.

- ✓ Israel, Iran, and India are likely to observe closely, with potential shifts in alliance calculations.

- **For Pakistan & Saudi Arabia**

- ✓ For Pakistan, this gives a stronger strategic role in the Arab security architecture; strengthens defence cooperation and possibly aid/security backing.
- ✓ For Saudi Arabia, it diversifies its security partnerships and backs its deterrence posture amid regional threats.

- **For India and Others**

- ✓ India has expressed expectations that Saudi Arabia will keep “mutual interests and sensitivities” in mind. Indian Ministry of External Affairs has asked for clarity.
- ✓ There is potential for India’s strategic environment to become more complex, especially in light of past Pakistan-India tensions and overlapping regional concerns.

### Concerns

- Countries like the U.S., Iran, Israel, and India may respond diplomatically or adjust their policies.
- With such mutual defence pacts, misperceptions or aggressive interpretations could lead to escalation.

### Conclusion

The Saudi–Pakistan defence pact marks a major strategic shift in West Asia, signaling deeper military ties and potential nuclear deterrence. While officially defensive, it raises regional security concerns, especially for India. The agreement adds complexity to evolving geopolitical equations in South Asia and the Middle East.

## INDIA AND IRAN: ANCIENT CIVILIZATIONS SHAPING NEW WORLD

**Why in News:** With their rich civilizational insights, strategic autonomy, and collaborative partnership, Tehran and New Delhi have the potential to establish a new order in our evolving world.

### Key Details

- India-Iran presents a powerful narrative about the shifting global power dynamics.
- The global system that has been controlled for decades by Western countries – especially the United States – is now facing serious problems.
- The West’s old tools of control, like dominance over finance, technology, media, and human rights standards, are no longer working as effectively as before.

### Rise of the Global South

- Many countries in the Global South - mostly in Asia, Africa, and Latin America - are rising. They are no longer willing to stay under Western influence. Instead, they are:
  - ✓ Creating their own development models
    - Building local industries and technologies
    - Strengthening defense and security systems

- This shift is leading to a more balanced global power structure.

### Civilizational role of Iran and India

- Both are among the oldest civilizations in the world, with rich cultures, philosophies, literature, and traditions.
- Major influence on governance, art, architecture, and philosophy.
- Shared values of both nations include:
  - ✓ Respect for diversity
  - ✓ Belief in the triumph of good over evil
  - ✓ A focus on spiritual and moral growth
  - ✓ Peaceful coexistence with nature

### Contemporary Relevance and Resilience

- Modern history examples:
  - ✓ India led the Non-Aligned Movement, supporting Global South Countries in resisting colonialism.
  - ✓ Iran nationalized its oil (1950s) and had Islamic Revolution (1979) to free itself from Western domination.
- Both countries have remained independent and self-reliant, even under heavy pressure:
  - ✓ Iran has faced economic sanctions, cyber-attacks, and foreign interference
  - ✓ India has faced global pressures too, but never gave up its sovereignty

### Multipolar World and South-South Cooperation

- Iran and India are central to this vision. They support South-South cooperation.
- Together, they are active in groups like BRICS (a bloc of emerging economies) and support projects like the international North-South Transport Corridor (INSTC), a trade route connecting Asia, Europe, and Africa.
- Such initiatives will build cultural and civilizational bridges and bring stability to regions like West Asia.

### Palestine Issue: Symbol of Global South's struggle

- The situation in Palestine highlights:
  - ✓ The double standard of the West on human rights.
  - ✓ The ongoing occupation and expansionism backed by powerful nations.
- Palestinians are fighting not just for their land but for the **rights of all weaker nations to resist domination.**
- Similarly, Iran's fighting to use peaceful nuclear energy is symbolic- it defends the right of all Global South countries to develop independently.

### U.S. interventions and Regional Instability

- US is being criticized for its role in creating instability in both:
  - ✓ West Asia (supporting wars in Syria, Iraq, Yemen, etc. and backing the Zionist regime)
  - ✓ South Asia (promoting or ignoring terrorist groups when it suits its interests)
- Iran, as one of the oldest civilizations in the region, has stood firmly against foreign interference and defends the territorial integrity of its neighbors.

### Ensuing Regional Security and balance

- Instead of relying on outside powers, countries like Iran and India believe in creating regional security systems based on: mutual respect, diplomacy, dialogue, and avoiding external interference.
- This approach promotes stability and cooperation within regions like West Asia and South Asia.

### Importance to India

- India-Iran relationship, is strategically, economically, culturally, and geopolitically important for India. It enables India to:
  - ✓ Assert its civilizational identity
  - ✓ Increase regional and global influence
  - ✓ Promote Multi-polarity
  - ✓ Reduce dependence on the west
  - ✓ Safeguard its long-term national interests
  - ✓ Iran strengthen Act West policy as a complement to Act East
  - ✓ It enhances India's connectivity with Eurasia
  - ✓ Diversifies energy and strategic partnerships beyond the Gulf monarchies

### Challenges

- US sanctions restrict trade and investment
- Banking and insurance barriers
- Uncertainty in Iran's domestic politics and regional role

### Way forward

- World is now seeking for a new global order based on: Justice and human dignity, Equality instead of superiority, and participation instead of domination.
- Iran and India, with their civilization wisdom, strategic independence, and growing cooperation, can help shape this new world.
- They are capable of offering a model that replaces power-based politics with morality, sustainability, and respect for diversity.

### Conclusion

- As the Western-led world order weakens, countries like Iran and India are stepping forward. Drawing on their deep civilizational roots, they are leading the Global South toward a more just, equal, and peaceful world.
- Instead of being tools in the hands of superpowers, nations are now demanding to be masters of their own destiny.
- And who better to guide this change than ancient civilizations that have withstood centuries of challenges— Iran and India—ready to shape the future with wisdom, strength, and cooperation.

#### EXPECTED QUESTION FOR UPSC CSE

#### Descriptive Question

Q. Critically examine the role of India-Iran relations in shaping a multipolar world and strengthening the Global South. [150 Words] [10 Marks]

## INDIA AT UNHRC

**Why in News:** India publicly condemned recent airstrikes in Doha and formally defended Qatar's sovereignty at the **United Nations Human Rights Council (UNHRC)**.

### Key points from India's position

- The attacks in question were Israeli airstrikes in Doha that reportedly targeted Hamas officials.
- India's Permanent Representative to the UN, said: "We unequivocally condemn the violation of Qatar's sovereignty."
- He also emphasized that differences should be resolved via dialogue and diplomacy, in accordance with the UN Charter and international law, and warned against further escalation.
- India's statement at UNHRC did not explicitly name Israel.
- India pointed out that Qatar is an important partner hosting over 830,000 Indian nationals, and being a major supplier of LNG (liquefied natural gas) to India.

### Implications

- **Diplomatic balancing act**
  - ✓ India condemned the violation of sovereignty strongly, but chose not to name Israel explicitly.
  - ✓ This approach helps India maintain ties across multiple stakeholders in West Asia (Israel, Gulf states, Palestine) while protecting its interests and positioning itself as a mediator.
- **Upholding sovereignty & International norms**
  - ✓ India's emphasis on sovereignty, diplomacy, and adherence to the UN Charter is consistent with its broader foreign policy posture.
  - ✓ By condemning such violations, India reinforces its commitment to rules-based order.
- **Strategic & Economic Interests**
  - ✓ Qatar is strategically important for India — for energy (LNG supply) and for its large expatriate Indian community in Qatar. A disruption or breakdown in India-Qatar relations would be costly domestically and economically.
  - ✓ With Israel being an important partner to India (especially in defense, technology, etc.), India may be cautious about explicitly condemning Israel in a way that jeopardizes bilateral cooperation.
- **Regional Stability**
  - ✓ By voicing concern about escalation, India acknowledges that conflicts in the Middle East can have spillover effects — on energy prices, migration, security, supply chains, etc.
  - ✓ India's position encourages restraint as much as it condemns aggressive action.

### VARIOUS OTHER DIMENSIONS

- **India's Stand on Sovereignty & International Law**
  - ✓ **UN Charter:** India upholds principles like non-interference, respect for sovereignty, and peaceful resolution of disputes.

- ✓ **Rule-based World Order:** India reiterates its commitment to multilateralism.
- ✓ **Balancing Act:** Condemned the strike but avoided naming Israel, preserving strategic ties with both Israel and Qatar.
- **India-Qatar Relations**
  - ✓ **Strategic & Economic Importance:**
    - Major energy supplier — particularly LNG.
    - ~830,000 Indian expatriates in Qatar — remittance source & diplomatic leverage.
  - ✓ **Cultural & Political Ties:** Shared interests in regional stability, regular high-level engagements.
  - ✓ **Diaspora Diplomacy:** Any instability in Qatar threatens Indian workers — hence India has stakes in regional peace.
- **India-Israel Relations**
  - ✓ **Strong bilateral ties:**
    - Defense cooperation
    - Counter-terrorism
    - Technology & agriculture
  - ✓ India's silence on naming Israel shows **strategic restraint**, maintaining balance.
- **Middle East Geopolitics (West Asia)**
  - ✓ **Israel-Hamas Conflict Spillover:** The conflict spread beyond Gaza, affecting neutral Gulf states like Qatar.
  - ✓ **Gulf Cooperation Council (GCC) tensions:** Qatar is seen as close to Hamas, unlike UAE/Saudi Arabia — reflects internal divides in the Arab world.
  - ✓ India must navigate **sectarian, political, and strategic** complexities in the region.
- **UN Human Rights Council (UNHRC) as a Platform**
  - ✓ India used a **multilateral platform** to voice its concern — reflects diplomatic maturity.
  - ✓ UNHRC is often used to raise **non-security issues with humanitarian and legal** implications.
  - ✓ Shows India's active engagement in global forums.
- **India's Position on Terrorism**
  - ✓ India traditionally **condemns all forms of terrorism**.
  - ✓ But it doesn't justify violations of sovereignty in the name of counter-terrorism — hence the protest.
  - ✓ Reiterates India's **balanced position:** no safe havens for terror, but with respect for international norms.
- **Energy Security**
  - ✓ Qatar is among India's top **LNG suppliers**.
  - ✓ Disruption in Qatar's energy infrastructure = threat to India's **energy security**.
  - ✓ India's response also reflects its concern over energy stability.
- **Diaspora Protection**
  - ✓ ~8.5 lakh Indians live in Qatar.
  - ✓ India's diplomatic stance partly stems from concern for the **safety of its citizens abroad**.

- ✓ Reflects India's growing **diaspora-centric foreign policy** (also seen during Ukraine war, Gulf evacuations, Sudan, etc.)
- **South-South Solidarity / Global South Diplomacy**
  - ✓ India's strong defense of a "brotherly state" like Qatar fits into its broader narrative of **Global South solidarity**.
  - ✓ As a voice for developing nations, India often opposes violations by larger powers.
- **Strategic Autonomy in Action**
  - ✓ India took a **principled stand** without aligning with any bloc.
  - ✓ Reflects its **non-alignment 2.0** or **multi-alignment strategy**.
  - ✓ Avoided joining Western condemnation or pro-Islamic bloc rhetoric.

### About Qatar (Officially – State of Qatar)

- **Capital:** Doha
- **Language:** Arabic
- **Government:** Absolute Monarchy (Amirate)
- **Location:** Arabian Peninsula, boarded by Saudi Arabia (land) & Persian Gulf (Sea)
- **Neighboring countries:** Saudi Arabia (land): Iran, UAE, Bahrain (across the Gulf)
- **Climate:** Arid desert- extremely hot summers, mild winters
- **Strategic importance:** Controls part of "Strait of Hormuz" indirectly via alliances
- **Diplomatic ties with India:** Established in 1973
- **Defence & Security (with India):** Regular naval visits, cooperation on maritime security

Aspect	Details
India's Position	Strong supporter of sovereignty, non-intervention, and multilateralism
Notable Contributions	Participated in UPR, sent special envoys, condemned violations in Gaza, Qatar
Criticism Faced	Occasionally criticized over Kashmir, CAA, AFSPA, internet shutdowns
Approach	Promotes a balanced, principled stance – avoids naming allies, supports sovereignty



### About UNHRC

- **Full name:** United Nations Human Rights Council
- **Established:** 15 March 2006 (by UNGA resolution 60/251)
- **Headquarters:** Geneva, Switzerland
- **Parent Body:** United Nations General Assembly (UNGA)
- **Replaced:** UN Commission on Human Rights
- **Membership:** 47 member states
- **Objective:** Promoting and protecting human rights globally
- **Functions:**
  - ✓ Review human rights situations in UN member states
  - ✓ Address gross and systematic human rights violations
  - ✓ Promote universal respect for human rights and fundamental freedoms
  - ✓ Respond to urgent human rights emergencies
  - ✓ Discuss thematic human rights issues (e.g., freedom of speech, women's rights)

### Conclusion

India's stand at UNHRC over Qatar's sovereignty is a classic case of pragmatic diplomacy rooted in:

- Principles of sovereignty
- Realpolitik balancing between key partners (Israel & Qatar)
- Protection of diaspora and energy security
- An evolving multilateral strategy in a complex geopolitical setting.

### EXPECTED QUESTION FOR UPSC CSE

#### Descriptive Question

Q. India recently condemned airstrikes in Doha and expressed support for Qatar's sovereignty at the UN Human Rights Council (UNHRC). In this context, examine how India's foreign policy balances its strategic interests with its commitment to international law and multilateralism. [250 Words] [15 Marks]

### DEFENCE PROCUREMENT MANUAL 2025

**Why in News:** Defence Minister has approved the Defence Procurement Manual (DPM) 2025 to expedite revenue procurement for the services, enable the domestic industry through simplified processes, promote innovation, and support enterprise.

#### Key Details

- The revised document will cater to the emerging requirements of the Armed Forces in the era of modern warfare.
- It will foster jointness among the three services and help in maintaining the highest level of military preparedness through expeditious decision-making.

#### Aim and Objectives

- **Enhance Efficiency:** Simplify procedures, reduce bureaucratic delays, and accelerate approval processes.

- Facilitate Industry Support: Mitigate working capital challenges, rationalize penalty structures, and ensure order assurance for vendors.
- Promote R&D and Innovation: Foster collaboration with IITs, IISc, academic institutions, and industry to drive indigenous development.

#### Defence Procurement Manual-India

- The Ministry of Defence, publishes the Defence Procurement Manual (DPM).
- **Versions available include:**
  - ✓ DPM 2006 (with amendments)
  - ✓ DPM 2009
  - ✓ Amendments and supplements (~ Supplement 2010)
- In 2025, a new version DPM 2025 has been cleared, with reforms focusing on indigenization, decentralization, and faster decision-making.

#### Key changes and Features in DPM 2025

- **Streamlining Revenue Procurements**
  - ✓ The DPM 2025 aims to simplify, rationalize, and speed up revenue procurement (i.e. procuring goods/services needed for operations, maintenance, spares, ammunition etc.).
- **Modernisation & Adaptation**
  - ✓ It is designed to meet emerging needs in modern warfare, foster “jointness” among the Army, Navy, Air Force, and allow faster decision making.
- **Boosting Self-Reliance (“Aatmanirbharta”)**
  - ✓ More participation from Indian industry private players, MSMEs, start-ups, academics, DPSUs.
  - ✓ New chapter on innovation & indigenisation: in-house design & development supported, tie-ups with academia & labs.
- **Relaxation of Penalties and More Support**
  - ✓ During the development phase, no Liquidity Damages (LD) will be levied. Post prototype-development, minimal LD (0.1%) applies.
  - ✓ Overall maximum LD is lowered to 5%, with only inordinate delay cases going up to 10%.
  - ✓ Guaranteed orders of certain quantities for up to 5 years; in special cases, extension beyond that.
- **Empowering Field/Lower-Level Decision Makers**
  - ✓ Competent Financial Authorities (CFAs) at field or subordinate levels are given more powers, especially to grant extension in delivery periods without having to move files up.
  - ✓ Bid opening dates can be extended locally (within certain limits) if there’s lack of participation, without always needing approvals from higher authorities.
- **More Fair Competition**
  - ✓ Removing requirement for certain “No Objection Certificates” from some DPSUs before open bidding; tenders will be more competitive.
  - ✓ Level-playing field concerns addressed.
- **Financial Magnitude & scope**
  - ✓ Revenue procurement under this manual is expected to cover about ₹1 lakh crore for the current financial year.

- ✓ The last full manual was from 2009, so this is a major update.

#### Implications & Potential Challenges

- Faster procurement cycles can help the armed forces maintain readiness and adjust to rapid threat changes.
- For industry, especially smaller firms and start-ups, reduced penalties and more assured orders are attractive. It lowers risk.
- The success will depend on how well the manual is implemented on ground — whether the authorities really delegate powers and reduce red tape.
- Monitoring & ensuring transparency & accountability remains crucial; new powers to CFAs mean oversight must be strong.
- Also, balancing speed with maintaining quality, safety, specifications will still be important in defence procurements.

#### Government initiatives for Defence Indigenization in India

- **Make in India (defence):** Promote domestic manufacturing of defence equipment; reduce import dependence; involve private sector.
- **Defence Acquisition Procedure (DAP) 2020:** Includes procurement categories like Buy Indian – IDDM (Indigenously Designed, Developed & Manufactured) and Buy Global – Manufacture in India; higher minimum indigenous content.
- **Defence Production & Export Promotion Policy (DPEPP) 2020:** To set targets for home-manufacture and defence exports; strengthen the ecosystem.
- **Positive Indigenisation Lists (PILs):** Lists of defence items that should be produced domestically, with import embargoes after certain dates.
- **Innovations for Defence Excellence (iDEX):** Support startup / MSME innovation, R&D, prototyping for defence needs.
- **Technology Development Fund (TDF) (by DRDO):** Grants / aid for development of defence-/dual-use technologies by private firms, MSMEs, startups.

#### Make I/ Make II projects

- **Make I:** Govt-funded projects for Indian Armed Forces with domestic vendors.
- **Make II:** Industry / private entity funded prototype or subsystems, especially for import substitution.
- **Defence Testing Infrastructure Scheme (DTIS):** To build testing & certification infrastructure (e.g. for UAVs, EW systems, electro-optics) to support indigenous production.
- **ADITI Scheme:** (Launched 2024) Promote innovations in critical & strategic defence technologies.
- **Simplified Industrial Licensing & FDI liberalisation:** Relaxation of licensing procedures; allowing higher FDI (e.g. up to 74% automatic route), to attract investment & tech transfer.
- **Defence Industrial Corridors:** Infrastructure & ecosystem development in specific regions (e.g. Uttar Pradesh, Tamil Nadu) for defence manufacturing clusters.

- **Public Procurement Preference:** Policies such as “Make in India” order, preferring domestic manufacturers in procurement (including DPSUs, private industry) where specifications match.
- **Srijan Portal:** Portal to list defence items for indigenisation and allow Indian industry / MSMEs to view, bid, participate.
- **Order Assurance Mechanisms under DPM-2025:** New Defence Procurement Manual includes “order assurance” over 5 years (extendable) to give industry confidence. Also, better sharing of technical know-how/helping industry with existing assets etc.
- **Budgetary Allocations & Procurement Quotas:** Mandating higher share of procurement budget for domestic sources; allocating large share of modernisation budget to Indian companies; increasing funds for R&D/tech schemes.

### Way Forward

To fully realise DPM 2025’s potential, the Ministry of Defence must ensure timely training of procurement officers, digital tracking of processes, and consistent application across services. Feedback loops with industry, especially MSMEs and startups, should be institutionalised. Simultaneously, aligning capital procurement reforms under DAP will be essential for a holistic, future-ready defence acquisition framework.

### Conclusion

The Defence Procurement Manual 2025 marks a strategic shift toward speed, innovation, and self-reliance in India’s defence ecosystem. By simplifying procedures, reducing penalties, and empowering local authorities, it addresses long-standing industry concerns. However, effective implementation, transparency, and oversight will be critical to translating its progressive reforms into tangible operational and industrial outcomes.

## INDIA-SINGAPORE RELATIONS

**Why in News:** Indian PM characterized India-Singapore ties as a ‘Partnership with Purpose’, emphasizing that their connection goes far beyond diplomacy. This is a partnership with shared values, mutual interest, common vision for peace, progress and prosperity.

### Key highlights

- Singapore is currently **India’s largest partner** in Southeast Asia in terms of investment flows.
- The two countries have elevated their engagement by establishing a **Comprehensive Strategic Partnership**, and over the past year their dialogue and cooperation have deepened.
- The leaders announced expansion of cooperation into new (non-traditional) sectors including **green shipping, skilling, civil nuclear, urban water management, AI, quantum technologies, and space science.**

- Singaporean participation in **Semicon India 2025**, the “**Semiconductor Ecosystem Partnership**” agreement has provided direction for R&D collaboration.
- They signed various MoUs in **space, technology & innovation**; one intent is to set up a **National Centre of Excellence for Skilling in Chennai.**
- On security, both countries affirmed common concerns about terrorism.
- The two leaders also inaugurated **JN Port PSA Mumbai Terminal Phase-II.**
- Third review of **CECA (Comprehensive Economic Cooperation Agreement)** and “**substantial review**” of **AITIGA (ASEAN-India Trade in Goods Agreement)** to be initiated in 2025.

### India-Singapore Comprehensive Strategic Partnership (CSP) roadmap for Indo-Pacific

- In September 2024, the two countries agreed to elevate their bilateral relationship to a Comprehensive Strategic Partnership (CSP).
- In September 2025, both the leaders adopted a Roadmap for the CSP to give vision and direction to the next phase of their bilateral cooperation.
- The CSP Roadmap defines **eight major pillars or areas** for deeper cooperation:
  - 1. Economic Cooperation**
    - ✓ Boost trade & investment.
    - ✓ Singapore is India’s biggest foreign direct investor; cumulative FDI nearly USD 170 billion.
    - ✓ Joint development of “next-generation industrial parks” and sustainable industrial parks.
    - ✓ Key sector focus: semiconductors, advanced manufacturing, green & digital shipping corridors, aviation, etc.
  - 2. Skills Development**
    - ✓ Establishment of a National Centre of Excellence in Chennai (advanced manufacturing).
    - ✓ State-level skill centres; training in sectors like aviation repair/maintenance and semiconductors.
    - ✓ Nursing skills, technical & vocational education cooperation.
  - 3. Digitalisation & Technology**
    - ✓ Deepening fintech & digital finance cooperation, cybersecurity, capital markets linkages.
    - ✓ Collaboration in AI, quantum computing, unmanned systems etc.
    - ✓ Expanding cross-border data flows, digital asset innovation.
  - 4. Sustainability**
    - ✓ Green shipping, green/digital shipping corridors.
    - ✓ Urban water management, civil nuclear cooperation, food security, renewable energy, green fuels.
  - 5. Connectivity**
    - ✓ Enhancement of maritime trade, ports & terminals (e.g. PSA Mumbai / Bharat Mumbai Container Terminal Phase 2)

- ✓ Aviation connectivity; exploring sustainable aviation fuel (SAF) cooperation.
- ✓ Green & Digital Shipping Corridors.

#### 6. Healthcare & Medicine

- ✓ Cooperation on digital health, disease surveillance, access to medicines, maternal & child health.

#### 7. People-to-People & Cultural Exchanges

- ✓ Student exchanges, civil service cooperation, training & study visits.
- ✓ Cultural centres / promoting culture (e.g. India's Thiruvalluvar Cultural Centre in Singapore)

#### 8. Defence & Security Cooperation

- ✓ Joint work in defence technology (AI, unmanned vessels, quantum).
- ✓ Maritime security, enhanced maritime domain awareness, patrols (including interest in Malacca Straits patrol)
- ✓ Mutual legal assistance, greater cooperation in law enforcement/counter-terrorism.

#### Why CSP matters & strategic significance?

- The CSP strengthens India's Act East / Indo-Pacific orientation by deepening ties with a major hub in Southeast Asia.
- It helps India in building resilience in supply chains (semiconductors etc.), addressing critical raw-materials, technology inputs.
- For Singapore, though small in size, this deep partnership gives leverage in regional affairs and diversifies its strategic and economic partnerships.
- Shared values: rule of law, multilateralism, trade openness, democratic governance — all increasingly important in a volatile global environment.

#### Key Agreements

- ✓ 1968: Bilateral Air Services Agreement
- ✓ 1994: Double Taxation Avoidance Agreement
- ✓ 1994: MoU on Foreign Office Consultations
- ✓ 2003: Defence Cooperation Agreement
- ✓ 2005: Comprehensive Economic Cooperation Agreement
- ✓ 2005: Mutual Legal Assistance Treaty

#### Way Forward

- **Boost Tech Collaboration:** Fast-track joint efforts in AI, semiconductors, quantum tech, and space.
- **Deepen Trade & Connectivity:** Expand digital economy links and green shipping corridors.
- **Enhance Financial Integration:** Strengthen UPI-PayNow, promote cross-border start-up investments.
- **Focus on Skilling:** Operationalize the Chennai Skilling Centre and promote talent exchanges.
- **Strengthen Security Ties:** Cooperate on cybersecurity, counter-terrorism, and maritime security.
- **Foster People-to-People Ties:** Encourage youth, cultural, and academic exchanges.

#### Conclusion

India and Singapore are natural partners in a rapidly changing Indo-Pacific. By expanding cooperation in emerging tech, infrastructure, and human capital, the two nations can build a resilient, future-ready partnership that goes far beyond diplomacy.

#### EXPECTED QUESTION FOR UPSC CSE

##### Descriptive Question

Q. India-Singapore relations have evolved into a strategic partnership that goes beyond traditional diplomacy. In light of recent developments, critically examine the areas of cooperation between the two nations and suggest a way forward to further strengthen bilateral ties. [250 Words] [15 Marks]

#### INDIA-US 2+2 INTERSESSIONAL DIALOGUE

**Why in News:** The India-US 2+2 Intersessional Dialogue is a mid-cycle review of the 2+2 Ministerial Dialogue, focusing on enhancing bilateral cooperation in:

- **Trade & investment:** Strengthening bilateral economic ties, investment flows, and addressing trade tensions.
- **Energy security (including strengthening civil-nuclear cooperation):** They emphasized advancing civil nuclear energy collaboration, diversifying energy supplies (including LNG/ renewables), and building resilient supply chains in related sectors.
- **Critical minerals exploration:** Critical minerals cooperation- essential for advance technologies, defence, clean energy, and reducing dependence on adversarial supply chains.
- **Counternarcotics and counterterrorism cooperation:** Cooperation in combating terrorism, narcotics trafficking, and exchanging regional security assessments were also on the agenda.
- **Defense cooperation,** industrial, science & technology collaboration, operational coordination, information sharing.
- **Indo-Pacific/ Quad & Regional stability:** Both sides reaffirmed their commitment to a "free, open, inclusive Indo-Pacific" and emphasized alignment with Quad priorities (with Japan & Australia) and regional stability via multilateral rules-based order.

#### Strategic Outcome

- Both sides look to sign a new **10-year Framework** for the India-US Major Defense Partnership.
- They intend to deepen cooperation under the **COMPACT initiative (Catalyzing Opportunities for Military Partnership, Accelerated Commerce & Technology)**.
- Reaffirmation to promote a "**safer, stronger, and more prosperous Indo-Pacific**" region, leveraging multilateral structures such as the **Quad**.

## Significance & Challenges

- **Strategic Depth in Bilateral Ties:** The intersessional mechanism helps maintain momentum in the India-US strategic partnership, even amid political or economic friction.
- **Critical Minerals & Supply Chain Security:** Given global supply chain fragilities, especially for strategic materials (rare earths, battery metals), collaboration in this area is vital. This is also a domain where India and the US have mutual interest to reduce dependence on unfriendly sources (notably China).
- **COMPACT as a Focal Mechanism:** COMPACT (Catalyzing Opportunities for Military Partnership, Accelerated Commerce & Technology) is highlighted as a mechanism through which many of these ambitions are to be operationalized. This suggests that future cooperation will increasingly involve joint industry projects, R&D, and possibly co-production / co-development.
- **Defense & Tech Linkages:** The 10-year framework could cement institutionalized defense cooperation, joint R&D, and technology sharing. In a region of intensifying strategic competition (especially China's rise), this is a key plank.
- **Signaling in the Indo-Pacific:** The dialogue underscores India's role as a strategic partner in the Indo-Pacific, aligning with the Quad and broader rules-based order ambitions.
- **Managing Friction:** The dialogue took place against a backdrop of trade and tariff tensions, which underscores how the strategic and economic relationship can have push-pull dynamics.

## Challenges & Constraints

- **Trade & Economic Frictions:** Ongoing tariff issues, trade barriers, and market access remain potential flashpoints that can strain the relationship.
- **Technology Transfer & Sovereignty Concerns:** India has sensitivities about critical tech or defense transfer—balancing collaboration vs preserving autonomy is always delicate.
- **Implementation Over Pledges:** As with many strategic dialogues, turning statements into action (contracts, joint programs, investments) takes time, budget allocations, and bureaucratic coordination.
- **Geopolitical Balancing:** India also has longstanding ties with other powers (e.g. Russia). Navigating between competing pressures is a continual balancing act.

### 2+2 Dialogue

- **India:** Minister for External Affairs and Minister of Defence
- **USA:** Secretary of State and Secretary of Defence
- It's aimed at promoting a whole-of-government approach to bilateral strategic cooperation.
- Launched in 2018, it replaced the earlier "India-US Strategic and Commercial Dialogue."

### Objectives of the 2+2 Dialogue

- Enhance defense cooperation and interoperability

- Strengthen strategic alignment in the Indo-Pacific region
- Facilitate high-end technology transfer and joint R&D
- Address regional and global issues—e.g., terrorism, maritime security
- Deepen people-to-people ties, education, science, and climate cooperation

### Importance for India

- Access to cutting-edge defense tech
- Stronger deterrent posture in border areas and Indian Ocean
- Enhanced collaboration on semiconductors, AI, quantum, green tech
- Support for India's energy security and counterterrorism efforts

### Importance for the US

- Anchors a key strategic partner in Asia
- Balances China's growing influence in the Indo-Pacific
- Gains a reliable partner in global supply chains, cybersecurity, and regional stability

### QUAD (Quadrilateral Security Dialogue)

- A multilateral strategic dialogue with the goal of ensuring a free, open, inclusive, and resilient Indo-Pacific region.
- It is not a military alliance, but a flexible partnership to address shared regional challenges, including:
  - ✓ Maritime security
  - ✓ Infrastructure development
  - ✓ Climate change
  - ✓ Emerging technologies
  - ✓ Supply chains
  - ✓ Health security (e.g., vaccines)
- Pillars of Cooperation: Security, Health, Technology, Infrastructure, Climate, Space

### India's Role in QUAD

- **Strategic autonomy:** India values QUAD but remains non-aligned; seeks multipolarity and balance in Asia.
- **Indo-Pacific outreach:** QUAD complements India's Act East Policy and growing naval engagement.
- **India contributes with:**
  - ✓ Vaccine production and health diplomacy
  - ✓ Naval presence in the Indian Ocean Region
  - ✓ Digital public infrastructure and open-source models (e.g., Aadhaar, UPI-inspired solutions)

## Way Forward

Both sides should prioritize actionable deliverables especially in defense co-production, critical minerals, and technology sharing while sustaining momentum through regular high-level engagements and alignment on Indo-Pacific strategies.

## Conclusion

The India-US 2+2 Intersessional Dialogue reaffirmed the growing strategic convergence between the two nations across defense, technology, and regional security. The commitment to a 10-year defense framework and initiatives like COMPACT signal a robust, future-oriented partnership.

## INDIA-JAPAN RELATIONS

**Why in News:** During the 15<sup>th</sup> India-Japan Annual Summit (held in Tokyo), both nations reaffirmed their shared commitment to peace, prosperity, and stability in the Indo-Pacific region.

### Key agreements & initiatives

- **Joint Vision for the next decade:** A broad framework across eight pillars: economy, economic security, mobility, environment, technology & innovation, health, people-to-people ties, and state-prefecture engagement.
- **Joint Declaration on Security Cooperation:** Elevates defense and security cooperation to address evolving threats, covering cyber, intelligence sharing, maritime security, and defense industry collaboration.
- **Action Plan for Human Resource Exchange & Cooperation:** Targets exchange/mobility of 500,000 personnel over five years, including 50,000 skilled Indians to Japan.
- **India-Japan Economic Security Initiative:** Focuses on securing supply chains in critical sectors like semiconductors, rare earths, advanced manufacturing.
- **AI/Digital/Tech Cooperation:** Launch of Japan-India AI Cooperation Initiative, expanding industry-academia collaboration, data center development, R&D on LLMs, quantum, etc.
- **Clean Energy, Hydrogen, and Climate:** Signing of Memorandum of Cooperation on the Joint Crediting Mechanism (JCM), and a Joint Declaration of Intent on Clean Hydrogen and Ammonia.
- **Science & Space Cooperation:** Enhanced collaboration between ISRO and JAXA, support for Lunar Polar Exploration (LUPEX) mission, extension of MoUs (e.g. Indian Beamline at KEK).
- **Connectivity & Infrastructure:** Emphasis on the Mumbai–Ahmedabad High Speed Rail (Bullet Train) project using Japanese Shinkansen technology (E10 series, signaling, etc.).
- **People-to-People/Cultural Exchange:** Opening of Indian Consulate in Fukuoka, expansion of Japanese language education (e.g. Nihongo Partners), enhancing tourism, state-prefecture ties.

### Strategic & Policy implications from the summit

- **Deepening strategic alignment:** The summit sends a message of reinforced strategic trust, especially in the context of evolving dynamics in the Indo-Pacific.
- **Economic and investment push:** Japan committed to mobilize ¥10 trillion (Japanese yen) in private investment in India over the next decade.
- **Supply chain resilience & tech sovereignty:** The focus on the Economic Security Initiative underscores both countries' desire to reduce dependency on single-source supply chains, especially for critical minerals, semiconductors, and advanced technologies.

- **Soft power / human diplomacy:** The push for large-scale human exchanges reflects recognition that long-term ties are strengthened by grassroots connections—students, professionals, culture.
- **Institutional depth:** Over 70 dialogue mechanisms and working groups exist between India and Japan, denoting a mature and institutionalized relationship.
- **Shared regional vision:** Both sides reaffirmed commitment to a free, open, inclusive Indo-Pacific, and underscored support in multilateral platforms (Quad, UN reforms).

### Significance

- The summit marks a new chapter in India-Japan cooperation, aiming for visible, scalable outcomes across technology, defense, and human exchange.
- The push into AI, supply chain resilience, and clean energy reflects a future-looking agenda attuned to global shifts.
- It positions India and Japan as key partners in shaping Indo-Pacific order, especially in light of regional strategic uncertainties.

### Challenges / Risks

- **Implementation:** Ambitious goals (e.g. moving 500,000 people) require strong logistical, legal, and regulatory frameworks.
- **Balancing interests:** Japan's investments must align with Indian priorities (e.g. in regions like the Northeast).
- **Geopolitical sensitivities:** Navigating China's responses and regional pushback will be critical.
- Execution across sectors (defense, tech, infrastructure) demands coordination across multiple ministries, states, and agencies.

### Way forward

- Fast-track implementation of agreements in defense, clean energy, and infrastructure.
- Boost trade and investment, aiming for balanced growth.
- Expand cooperation in AI, semiconductors, and emerging tech.
- Strengthen people-to-people ties through skill development and cultural exchange.
- Enhance strategic coordination in regional and global forums like Quad and G20.

### Conclusion

The 15th India-Japan Annual Summit reinforced the deepening of their Special Strategic and Global Partnership, focusing on defense, economic security, technology, and people-to-people ties. It reflected a shared vision for a free, open, and resilient Indo-Pacific.

**India-Japan Relations**

**Historical background**

- Cultural and civilizational ties date back to the 6th century with the spread of Buddhism from India to Japan.

- Post World War II, India's support for Japan's reintegration into the global community helped forge goodwill.
- The first Japanese Prime Minister to visit India was Nobusuke Kishi in 1957.

#### Political and Strategic Cooperation

- Both countries hold regular high-level dialogues (Annual Summits, 2+2 ministerial dialogues).
- They are part of Quad (India, Japan, USA, Australia), promoting a free, open, and inclusive Indo-Pacific.
- Collaborate on regional security and maritime cooperation, particularly to counterbalance China.

#### Economic and Infrastructure Development

- Japan is a major investor in India:
- Over \$38 billion in FDI between 2000–2023.
- Significant investments in infrastructure projects, like:
  - ✓ Mumbai-Ahmedabad Bullet Train Project
  - ✓ Delhi-Mumbai Industrial Corridor (DMIC)
- Japan International Cooperation Agency (JICA) plays a major role in funding.

#### Defense and Security

- Annual India-Japan joint naval exercises like JIMEX.
- Collaboration in defense manufacturing under Make in India.
- Agreements on logistics support and military training.

#### Science, Technology, and Innovation

- Collaboration in areas such as space (ISRO–JAXA), AI, robotics, and green technology.
- Academic exchanges and joint research initiatives.

#### Multilateral and Global Cooperation

- Common positions on UN reform, climate change, counter-terrorism, and supply chain resilience.
- Both support a rules-based international order.

#### Future Prospects

- Semiconductors and critical technologies
- Defense production and cybersecurity
- Energy transition (green hydrogen, nuclear energy)

### EXPECTED QUESTION FOR UPSC CSE

#### Descriptive Question

Q. Discuss the significance of the 15th India-Japan Annual Summit in strengthening the Special Strategic and Global Partnership between the two countries. What are the key challenges in realizing the outcomes of this partnership? [250 Words] [15 Marks]

### H-1B VISA

**Why in News:** Florida Governor called the H-1B visa 'a total scam', claiming that companies exploit it to hire cheaper labor from India, thereby hurting American workers.

#### Other details

- Companies are laying off large numbers of Americans while hiring new H-1B workers and renewing existing H-1B visas.
- India is especially vulnerable, since about 70% of H-1B visa holders are from India.

#### H-1B Visa & its purpose

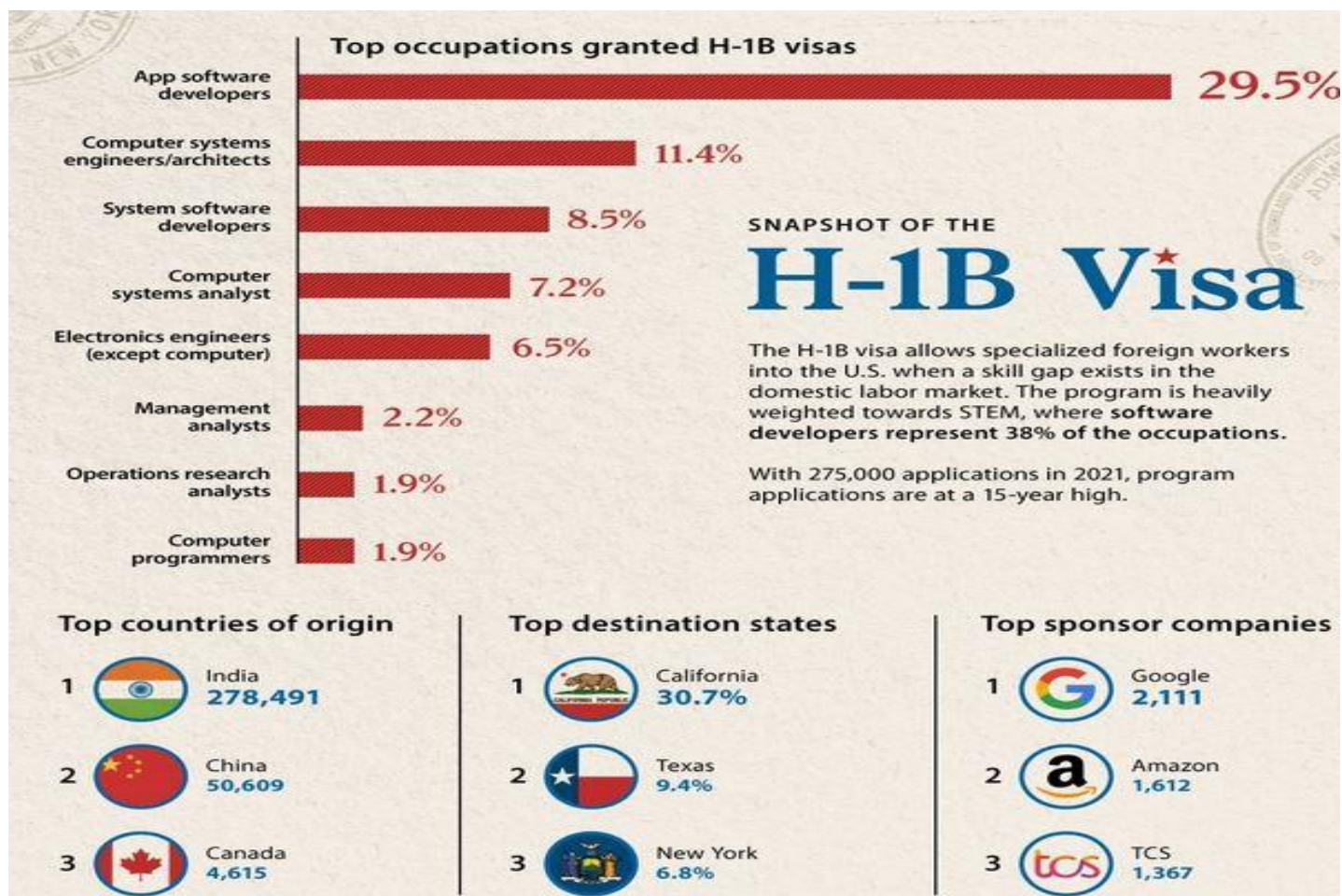
- The H-1B visa is a **U.S. non-immigrant visa** allowing American companies to hire foreign workers in “**specialty occupations**” (requires at least a bachelor’s degree or equivalent) in fields like IT, engineering, science, etc.
- It is meant to help fill gaps in the U.S. labor market where qualified U.S. workers are unavailable or in shortage.
- **Validity:** Initially 3 years, extendable to 6 years.
- There is a cap (currently 85,000 per year including 20,000 for U.S. master’s degree holders) and when applications exceed the cap, a lottery is conducted.
- **Dual Intent:** Allows applicants to pursue permanent residency (green card) while on H-1B.

#### Alternatives to H-1B

- ✓ **L-1 Visa:** For intra-company transfers.
- ✓ **O-1 Visa:** For individuals with extraordinary ability.
- ✓ **TN Visa:** For Canadian/Mexican citizens (under NAFTA/USMCA).
- ✓ **F-1 OPT/STEM OPT:** Often used by students as a stepping stone to H-1B.
- ✓ **H-2B:** Allow to bring foreign nationals to the United States to fill temporary non-agricultural jobs.

#### Criticisms of H-1B

- **Job Displacement:**
  - ✓ Critics claim H-1B workers replace American workers and drive down wages.
  - ✓ Supporters argue they fill skill gaps where U.S. talent is lacking.
- **Wage Concerns:**
  - ✓ Some companies allegedly underpay H-1B workers.
  - ✓ Reforms propose prioritizing higher salaries to avoid abuse.
- **System Manipulation:**
  - ✓ Accusations include companies gaming the system through outsourcing or multiple applications.
  - ✓ Enforcement is inconsistent.
- **India’s Dominance:**
  - ✓ Over 70% of H-1Bs go to Indians, leading to claims of a “cottage industry.”
  - ✓ This can fuel nationality-based bias.



#### Impact on Indian Professionals and Families

- Visa uncertainty creates stress for Indian families living in the U.S., particularly around extensions, green card delays, and dependent visas (H-4).
- Children on H-4 visas (H-4 Dreamers) risk “aging out” and losing legal status at 21.
- Families face difficult choices around relocation, career disruption, or citizenship dilemmas.

#### IT Sector Response

- Indian IT firms (e.g., TCS, Infosys, Wipro) may scale back U.S. hiring or increase local talent onboarding to comply with evolving rules.
- Companies are also diversifying markets (Canada, UK, Europe) and investing in nearshore centers in Mexico and Latin America.
- H-1B constraints add to the challenge of global tech slowdown, layoffs, and AI disruption.

#### Strategic implications for India’s talent ecosystem

- Could trigger reverse brain drain, with top Indian talent returning or never leaving India.
- India’s domestic tech/startup ecosystem stands to benefit from the retention of skilled talent.
- Pushes the Indian government to invest more in R&D, digital skilling, and local innovation ecosystems.

#### Long-term consequences for Innovation

- The U.S. has historically relied on immigrant talent (especially Indians) for tech leadership and innovation.

- Restricting H-1B access may hinder Silicon Valley’s competitiveness and slow global innovation.
- India may emerge stronger in AI, semiconductors, and deep tech if returning talent is absorbed effectively.

#### Economic Ramifications & Market Dynamics

- Remittances from H-1B workers in the U.S. contribute significantly to India’s foreign income.
- Changes in visa policy may affect consumer demand, real estate, and education trends (e.g., fewer Indian students opting for U.S. universities).
- U.S. firms may face talent shortages, raise costs and slow digital transformation.

#### Conclusion & Way Forward

The H-1B visa debate highlights the need for balanced immigration reform that protects local jobs while valuing global talent. India must strengthen its domestic tech ecosystem, invest in R&D, and retain skilled professionals. Bilateral dialogue between India and the U.S. can ensure fair policies that support innovation, economic growth, and mutual strategic interests.

#### EXPECTED QUESTION FOR UPSC CSE

##### Descriptive Question

Q. "Discuss the implications of recent U.S. policy shifts on the H-1B visa program for India–U.S. bilateral relations. How should India recalibrate its domestic policies to safeguard its talent pool and economic interests?" [150 Words] [10 Marks]

**Why in News:** The EU has unveiled a new comprehensive strategic agenda to elevate its partnership with India, focusing on areas of trade, technology, defence, sustainability, and global cooperation.

**Other highlights**

- The announcement was made with the adoption of the **‘New Strategic EU-India Agenda’** by European Commission and the EU’s High Representative for Foreign Affairs and Security Policy.
- Another roadmap was adopted earlier in 2020 to deepen cooperation and align both parties shared interests across a wide range of areas, such as trade, climate change, defense, digital economy, and regional security.
- Both have confirmed **the next India-EU Summit to be held in India in 2026.**

**Background**

- Adopted on 15 July 2020, at the 15<sup>th</sup> EU-India Summit
- The aim was to guide joint action in the period up to 2025, across foreign policy and security, trade and investment, sustainability, connectivity, people-to-people ties, etc.

**Five strategic priority areas of New Strategic EU-India Agenda (2025)**

**1. Trade and Investment**

- Reaffirmation of commitment to conclude **the India-EU Free Trade Agreement (FTA) by end of 2025.**
- Emphasis on:
  - ✓ Strengthening **supply chain resilience**
  - ✓ Facilitating **talent mobility**
  - ✓ Promoting **investment in strategic sectors**
  - ✓ Regulatory alignment and standards cooperation

**2. Technology and Innovation**

- Cooperation on:
  - ✓ **Emerging technologies-** AI, Quantum, Semiconductors
  - ✓ **Digital Public Infrastructure**
  - ✓ **Cybersecurity and Cyber defence**
- Expanded R&D cooperation (eg. Possible deeper Indian role in Horizon Europe)

**3. Security and Defence**

- Launch of negotiations for a **Security of Information Agreement** (for classifies data sharing)
- Areas of collaboration:
  - ✓ **Maritime security** in the Indo-Pacific
  - ✓ **Crisis management and counter-terrorism**
  - ✓ **Cyber defence and hybrid threats**
  - ✓ **Industrial defence cooperation,** potentially including co-production

**4. Sustainability and clean transition**

- Strong push for:
  - ✓ **Green hydrogen** cooperation
  - ✓ **Renewable energy** investment and technology sharing

- ✓ Joint efforts for **climate resilience**
- EU’s **Carbon Border Adjustment Mechanism (CBAM)** is a key point to align on in trade talks

**5. Global Connectivity and Governance**

- Support for global infrastructure initiatives such as:
  - ✓ **Global Gateway**
  - ✓ **India-Middle East-Europe Economic Corridor (IMEC)**
- Collaboration on:
  - ✓ **Food Security**
  - ✓ **Multilateral governance**
  - ✓ Reform of global institutions (eg. UN, WTO)
  - ✓ Development cooperation in third countries

**Strategic Significance**

Aspect	Strategic Impact
Geopolitical	Shows EU’s tilt toward trusted Indo-Pacific partners amid tensions with China and Russia
Economic	Potential to unlock FTA, new market access, investment, and regulatory harmonization
Security	Expands EU-India cooperation beyond dialogue — into defence industrial and information domains
Tech & Climate	Places innovation and green transition at the center of cooperation
Global Order	Signals shared commitment to a rules-based multilateral system

**Challenges**

- **FTA deadlines:** Market access, tariffs (e.g., EU cars), sustainability (CBAM), IPRs still need resolution.
- **Defence sensitivities:** Security of Information Agreement requires strong mutual trust and legal frameworks.
- **Geopolitical Nuances:** India’s neutral stance on conflicts (e.g., Ukraine) may require careful EU navigation.
- **Implementation Capacity:** Converting commitments (e.g., on green hydrogen, supply chains) into tangible joint projects.

**What has happened so far (developments till 2025)**

- **Free Trade Agreement (FTA)**
  - ✓ India and the EU aim to conclude the FTA by end of 2025.
  - ✓ Several chapters (e.g. IPR, customs, trade facilitation) are finalized.
  - ✓ Key hurdles remain: market access (autos, agriculture), technical standards, and sustainability issues (e.g. CBAM).
- **New Strategic EU-India Agenda (September 2025)**
  - ✓ EU launched a new agenda to elevate ties, focusing on five pillars:
    - Prosperity & sustainability
    - Technology & innovation
    - Security & defence
    - Connectivity & global governance
    - People-to-people cooperation

- ✓ **Key areas:** startups, digital infrastructure, defence industry, AI, semiconductors, research (Horizon Europe).
- **Global Gateway & Trilateral Cooperation**
  - ✓ Joint work in third countries under Global Gateway aligned with SDGs.
  - ✓ Focus areas: digitalisation, clean energy, agriculture, water, social protection, gender equality.
- **Security & Defence**
  - ✓ Growing cooperation in cybersecurity, crisis management, maritime security, and defence capacity.
  - ✓ Negotiations to begin on a Security of Information Agreement for classified data sharing.
- **Connectivity Initiatives**
  - ✓ Focus on IMEC (India-Middle East-Europe Corridor) as a strategic route.
  - ✓ More EU investments in infrastructure, renewables, and digital public goods.
- **Mobility, Research & Innovation**
  - ✓ Emphasis on talent mobility, academic exchanges, and tech cooperation.
  - ✓ Deepening startup ecosystem ties and regulatory alignment in innovation sectors.

#### Future of the partnership

- PM Modi described it as a “shared commitment, shared goal, and shared responsibility”.
- Both express their continuous efforts to expand its diplomatic and economic ties with key global partners.
- Both will shared approach to resolve global conflicts (Ukraine crisis) peacefully.

#### Implication for India

The new EU-India strategic agenda offers significant benefits for India across key sectors:

- **Trade & Investment:** Finalizing the Free Trade Agreement (FTA) could open European markets for Indian exports, boosting sectors like IT, pharma, and textiles.

- **Technology & Innovation:** Collaboration in AI, digital transformation, and emerging tech will support India’s innovation ecosystem and digital growth.
- **Defence & Security:** Closer ties in maritime security, cyber defence, and intelligence sharing enhance India’s strategic posture, particularly in the Indo-Pacific.
- **Sustainability:** EU support in green tech and renewables aligns with India’s climate goals and energy transition plans.
- **Global Standing:** Strengthened ties with the EU enhance India’s role in shaping a multipolar, rules-based international order.

#### Conclusion

The New Strategic EU-India Agenda marks a pivotal moment in the evolution of bilateral relations, aligning shared democratic values with common economic and geopolitical goals. As both partners face an increasingly complex global landscape, this agenda lays a strong foundation for deeper cooperation in trade, technology, security, and sustainable development.

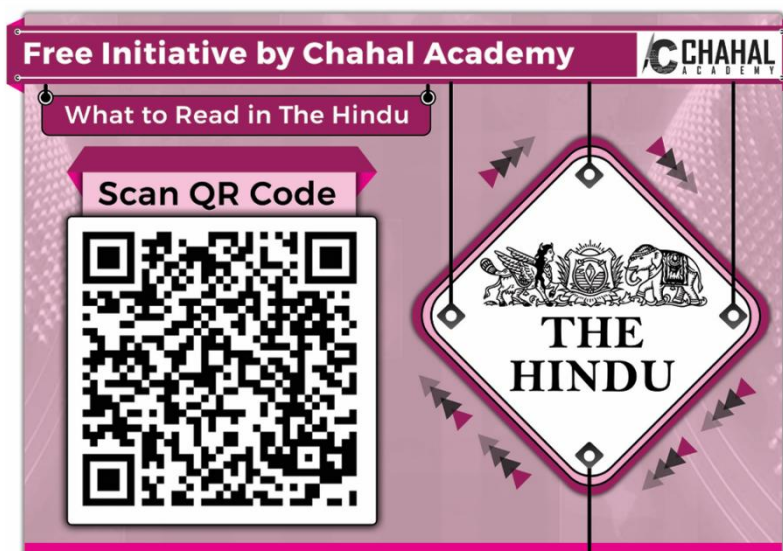
#### Way Forward

To realize the agenda's full potential, India and the EU must prioritize swift conclusion of the FTA, institutionalize regular high-level dialogues, and foster stronger people-to-people and industry ties. Collaborative efforts in digital infrastructure, climate resilience, and global governance reform will be essential to building a resilient, future-ready partnership.

**EXPECTED QUESTION FOR UPSC CSE**

**Descriptive Question**

Q. "The New Strategic EU-India Agenda 2025 offers an opportunity to recalibrate and deepen the partnership between two major democratic powers. Critically examine the strategic significance of this agenda for India in the evolving global geopolitical and economic context." [250 Words] [15 Marks]



# ECONOMY & AGRICULTURE

## URBAN CHALLENGE FUND

**Why in News:** The Union Housing & Urban Affairs Ministry has finalized a prototype worth ₹300 of the proposed Urban Challenge Fund (UCF) under AMRUT mission.

### Key Details

- Pilot cities with population  $\geq$  1 lakh (2011 census) will be selected.
- The main aim is to promote infrastructure projects that are financially bankable, climate-friendly, and self-sustaining.
- Under the prototype, the government will provide a credit guarantee for 70% of funds.
- The full UCF envisages co-financing up to 25% of projects, conditional on leveraging bonds, bank loans, or PPPs for at least 50% of the remaining cost.
- The goal is to instill financial discipline in municipal bodies, reduce overreliance on grants, and attract private investment.
- A world Bank report estimates India needs approx. \$2.4 trillion by 2050 for climate-resilient, low-carbon urban infrastructure.

### Atal Mission for Rejuvenation and Urban Transformation (AMRUT) Mission

- Launched in June 2015.
- Aims to improve the quality of life in urban areas, especially in cities and town, by providing essential infrastructure and services.
- It is Centrally Sponsored Scheme, with the funding shared between the Centre and States.
  - ✓ 90:10 for North-Eastern and Hill states
  - ✓ 50:50 for Union Territories
  - ✓ 60:40 for other states

### AMRUT Vs. AMRUT 2.0

Feature	AMRUT (2015)	AMRUT 2.0 (2021)
Focus	Basic services (water, sewerage, urban transport)	Universal water supply & 100% sewage management
Coverage	500 cities	All cities/ towns (except those under Jal Jeevan Mission)
Goal	Improve infrastructure	Make cities water secure and self-sustaining

### Urban Challenge Fund

- The UCF is a new urban financing model announced to promote financially sustainable, climate-resilient urban infrastructure by:

- ✓ Encouraging innovative, market-drive urban financing (beyond grants)
- ✓ Attracting private capital
- ✓ Promoting financial discipline in Urban Local Bodies (ULBs)

### Importance

- **Urban Infrastructure & Development:** The UCF is meant to catalyze infrastructure in water, sanitation, transport, green spaces, etc., in cities beyond just grant-driven models.
- **Innovative Financing / Fiscal Sustainability:** Moves municipal funding from pure grants to a blend of debt, equity, PPPs, and guarantees.
- **Risk Sharing & Credit Guarantee:** The state (central/union) bearing risk (70% guarantee) helps de-risk private investments.
- **Scalability & Replicability:** Success in pilot cities can shape guidelines for roll-out across the country.
- **Climate & Resilience Focus:** In alignment with sustainable urban growth, the UCF is relevant for climate adaptation, low-carbon infrastructure.
- **Governance & Capacity Building:** Municipal bodies will need to build capacity in project preparation, financial modeling, credit management.
- **Inter-ministerial Coordination:** Requires coordination between Ministry of Finance, MOHUA, urban local bodies, banks, financial institutions.

### Challenges / Risks

- **Capacity gaps** in many municipal bodies for preparing “bankable” projects.
- **Credit risk & defaults** — even with guarantees, poor project execution can lead to losses.
- **Moral hazard** — too much guarantee may discourage due diligence.
- **Market appetite** — private investors may remain hesitant due to weak credit history of municipal bodies.
- **Regulatory / legal issues** — land acquisition, clearances, property rights, local regulations could bottleneck.
- **Pilot-to-scale risk** — what works for prototype cities may not suit smaller or more constrained cities.

### Way Forward

- Select pilot cities carefully, ensuring diversity (size, region, capacity) to test varied challenges.
- Capacity building & technical support through state/central agencies or international partners to support municipal bodies.
- Strong monitoring & evaluation (M&E) framework to assimilate lessons during prototype stage.
- Refine risk-sharing mechanisms to balance incentives and responsibility.

- Encourage blended finance models, involving grants, debt, equity and private investment.
- Standardize and simplify procurement / approval processes for faster project implementation.
- Enable a replicable template project documentation, model contracts, financial templates, best practices.
- Ensure stakeholder involvement (state governments, urban local bodies, communities) to align interests.

### Conclusion

The Urban Challenge Fund represents a paradigm shift in India's urban financing approach from grant dependency to self-reliant, performance-based infrastructure development. Its success will depend on building ULB capacity, fostering partnerships, and balancing risk-sharing to make Indian cities future-ready and financially robust.

#### EXPECTED QUESTION FOR UPSC CSE

##### Descriptive Question

Q. The Urban Challenge Fund (UCF) marks a shift from grant-based urban development to performance-linked and market-oriented financing. Discuss the objectives, significance, and challenges of the UCF, and suggest measures to ensure its effective implementation." [150 Words] [10 Marks]

## INDIA'S LABOUR PRODUCTIVITY GAP

**Why in News:** India's formal manufacturing sector is increasingly relying on contractual labour, but far from delivering the promised flexibility and efficiency, this trend is undermining productivity, weakening worker rights, and threatening long-term industrial growth.

### Key trends highlighted

According to the Annual Survey of Industries (ASI):

- The share of contract workers in India's formal manufacturing workforce has doubled over the past two decades- from 20% in 1999-2000 to 40.7% in 2022-23.
- The justification for this shift is operational flexibility or access to specialized skills; the reality appears more complex and problematic.
- The study finds that cost-cutting and regulatory evasion, not labour flexibility, are the key drivers of this trend.

### Contract workers vulnerability

- Most contract workers are hired through third-party contractors.
- They exclude them from core labour protections which are enshrined in the Industrial Disputes Act, 1947.
- They are often deprived of safeguards against arbitrary dismissal, retrenchment compensation, and other statutory rights.
- **The data for 2018-19:**
  - ✓ Wages for contract workers were 14.47% lower than for regular employees on average.
  - ✓ The wage gap widened in larger enterprises:
    - 31% lower in large firms
    - 23% in medium-sized
    - 12% in small enterprises

- ✓ Labour cost to employers for contract workers was 24% lower per day.
- ✓ In some industries, this cost gap was as high as 78–85%, pointing to severe exploitation.

### Labour Productivity

- Labour productivity refers to the output (usually GDP or value added) per worker or per hour worked.
- Labour Productivity = GDP / Total Labour Input
- It's a key metric for:
  - ✓ Economic efficiency
  - ✓ Living standards
  - ✓ Wage growth
  - ✓ Global competitiveness

### Labour Productivity Gap

- **Sectoral Gaps**
  - ✓ Agriculture: Employs ~45% of the workforce but contributes only ~15–18% to GDP.
  - ✓ Industry & Manufacturing: Employs 20–25%, contributes more than agriculture.
  - ✓ Services: Employs 30–35%, but contributes over 50% to GDP.
- **Formal Vs. Informal Sector**
  - ✓ Informal sector employs ~85–90% of India's workforce, but contributes only ~50% of GDP.
  - ✓ Formal sector jobs are significantly more productive due to better capital, technology, and processes.
- **Contract Vs. Regular workers**
  - ✓ Contract labour in formal sector firms tends to have 30–35% lower productivity than regular workers.
  - ✓ Lack of training, job security, and poor working conditions are major causes.

### Causes of India's Productivity Gap

- **Structural:** Overdependence on agriculture, low industrial base, weak urbanization
- **Labour Market:** Informality, contract labour misuse, low skilling, underemployment
- **Education & Skills:** Poor quality of education, large skill mismatch, low vocational training
- **Technology & Capital:** Low capital per worker, poor tech adoption in MSMEs
- **Regulation & Policy:** Rigid or poorly enforced labour laws, compliance burdens for small firms
- **Infrastructure:** Logistical bottlenecks, unreliable electricity, poor urban planning

### Consequences of Low Labour Productivity

- **Low Wages:** Poor productivity limits wage growth.
- **Slower GDP Growth:** Especially when population growth slows.
- **Jobless Growth:** Output rises but without proportional employment.

- **High Inequality:** Productive jobs are concentrated in a small formal core.
- **Global Uncompetitiveness:** Especially in manufacturing exports.

### Exceptions: High-skill and Capital-Intensive Sectors

There are notable exceptions to this trend:

- **In high-skill contract-intensive enterprises,** productivity was **5–20% higher** compared to their low-skill counterparts.
- **Large capital-intensive CLI firms showed a 17% productivity gain.**

However, these account for only 20% of total formal manufacturing. The remaining 80% — mostly small and medium enterprises — continue to be hurt by the misuse of contract labour.

### Problems & Mechanisms

- **Low investment in training / skill development:** contract workers often don't get training, which undermines long-run productivity.
- **High turnover / weak loyalty:** short-term contracts, no job security, and lack of benefits cause attrition and weak attachment to the firm.
- **Principal-agent issues / moral hazard:** because the contractor (middleman) is the employer, their incentives may not align with the principal firm — leading to shirking, quality lapses, or minimal commitment.
- **Regulatory evasion:** by using third-party contractors, firms avoid liabilities related to layoffs, retrenchment rules, social security contributions, etc.

### Government schemes & Initiatives

- Pradhan Mantri Rojgar Protsahan Yojana (Discontinued in March 2022)
- Labour code reforms (2020)
  - ✓ Industrial Relations Code, 2020
  - ✓ Code on Social Security, 2020
  - ✓ Occupational safety, Health & Working Conditions Code, 2020
  - ✓ Code on Wages, 2019
- Shram Suvidha Portal
- National Career Service
- Skill India Mission (including PMKVY)
- Atmanirbhar Bharat Rozgar Yojna (Now closed-announced during CoVID)
- Startup India & MSME support schemes

### Way Forward

- **Formalisation of employment relations:** giving workers a more direct contractual relation with firms (rather than via contractors), with mandatory basic benefits (PF, social security).
- **Full implementation of the labour law reforms/ labour codes,** especially the Industrial Relations Code (2020), which allows fixed-term hiring without third-party intermediaries.
- **Incentives to firms to formalise hiring:** e.g. reviving or redesigning schemes like Pradhan Mantri Rojgar

Protsahan Yojana (PMRPY) (which subsidised employer's EPF/EPF contributions for new employees), or offering social security contribution relaxations for firms adopting longer contracts.

- **Strengthening legal enforcement, transparency, and digital compliance:** e.g. random inspections, public disclosure of contract labour numbers, digital portals to monitor compliance.
- **Ensuring universal social protection:** extending EPF, ESIC and other welfare covers to all workers (including contract & gig) with portability across employers and states.
- **Labour law:** Implementing the 4 labour codes across all states. Simplify compliance while protecting worker's rights.

### Conclusion

India's journey toward becoming a \$5 trillion economy requires not just more jobs, but more productive, stable, and secure jobs. Overdependence on cheap, disposable contract labour may offer short-term cost savings, but it undermines the economy's long-term efficiency and equity. India now stands at a critical juncture where policy, industry, and labour must align to reform how work is structured — ensuring that productivity and worker dignity go hand in hand.

#### EXPECTED QUESTION FOR UPSC CSE

##### Prelims MCQ

Q. Which category of enterprise was found to have the largest productivity gap between contract labour-intensive (CLI) and regular labour-intensive (RLI) firms?

- Large capital-intensive enterprises
- High-skill enterprises
- Small enterprises (<100 workers)
- Export-oriented units

**Answer: (c)**

### RBI LIQUIDITY MANAGEMENT FRAMEWORK REVIEW

**Why in News:** The Reserve Bank of India (RBI) recently released the report of the Internal Working Group (IWG) to review the Liquidity Management Framework.

#### What triggered the review

- The current framework (since ~February 2020) has used various tools (repos, reverse repos, VRR/VRRR, open market operations, etc.) to manage day-to-day and structural liquidity.
- Some persistent issues: surplus liquidity, volatility in short-rates, reduced interbank market activity, operational inefficiencies especially over longer tenors.

#### About Liquidity Management Framework (LMF)

The Liquidity Management Framework is the Reserve Bank of India's (RBI) strategy for ensuring that there is just the right amount of money (liquidity) in the banking system— not too much, which could fuel inflation, and not too little, which could restrict economic growth.

<b>Objectives:</b>			
<ul style="list-style-type: none"> <li>• Maintain Financial Stability</li> <li>• Support monetary policy transmission</li> <li>• Ensure availability of adequate liquidity</li> <li>• Keep short-term interest rates aligned with the policy repo rate</li> <li>• Manage day-to-day volatility in Liquidity</li> </ul>			
<b>Key components of RBI's Liquid Management Tools</b>			
<b>Tool</b>	<b>Purpose</b>	<b>Frequency</b>	<b>Example</b>
Repo / Reverse Repo	Short-term liquidity injection/ absorption	Daily	RBI lends money to banks (Repo) or absorbs liquidity (Reverse Repo)
Variable Rate Repo (VRR) / Reverse Repo (VRRR)	To fine-tune liquidity for specific durations	Weekly/ Ad hoc	7-day or 14-day VRRRs to absorb excess liquidity
Marginal Standing Facility (MSF)	Emergency borrowing for banks at higher rate	Daily	Banks borrow from RBI at +25 bps over repo
Standing Deposit Facility (SDF)	Floor of the corridor (introduced in 2022)	Daily	Banks Park surplus at SDF rate without collateral
Open Market Operations (OMO)	Buy/sell government securities to manage durable liquidity	As needed	RBI buys G-Secs to infuse liquidity
Cash Reserve Ratio (CRR)	Mandated reserve banks must hold with RBI	Fortnightly average	Affects overall liquidity in the system
Liquidity Adjustment Facility (LAF)	Umbrella facility covering repo, reverse repo, MSF	Daily	Helps set short-term market rates around policy repo

### Recommendations of the IWG

- **Operating Target:** Retain the Weighted Average Call Rate (WACR) as the operative target of monetary policy.
- **Corridor system:** Continue corridor system with the repo rate in the middle. Maintain policy rate as central reference.
- **14-day variable-rate repo/ Reverse repo (VRR/VRRR):** Discontinue using 14-day VRR/VRRR auctions as the main tool. Instead: use 7-day operations as the primary instrument for managing transient liquidity. Also use tools of varied tenors (overnight up to ~14-days) as needed.

- **Frequency and Flexibility of Operations:** Weekly main operations, supported by fine-tuning operations; improved flexibility in selecting tenors based on liquidity needs.
- **Reserve Requirements / Averaging Mechanism:** Maintain reserve requirements and averaging but revise them to reduce inefficiencies: many banks maintain much more than required (leading to 'idle' liquidity). Consider lower minimum daily reserve requirements during maintenance periods to allow more arbitrage and smoother rate behaviour.
- **Standalone Primary Dealers (SPDs):** SPDs borrow heavily in the call money market but do not have access to RBI's Marginal Standing Facility (MSF), which contributes to volatility—rates sometimes breach corridor ceilings. The group recommends phasing out SPDs' participation in call market; instead, alternative arrangements for government securities trading.
- **Structural Liquidity Surplus:** Recognize that persistent surplus liquidity is a challenge: it tends to pull WACR away from policy rates / corridor bounds in unpredictable ways, affecting monetary transmission. The framework should have durable/liquidity operations (longer-term tools) to address such surplus.

### Trade-offs and challenges

While the recommendations aim to improve control, efficiency, and transparency, there are several trade-offs & potential challenges:

- **Predictability vs flexibility:** Banks preferring shorter terms want more certainty in planning liquidity, but too much flexibility might lead to more volatility if market participants mis-anticipate operations.
- **Interbank Market Activity:** Narrow corridors help reduce volatility but may suppress interbank trades; fewer trades can weaken policy transmission and market discipline. Balancing corridor width is crucial.
- **Government Cash Flows & Forecasting:** Government receipts, payments, and cash balances are often volatile; these affect system liquidity unexpectedly. The ability of RBI to forecast durable liquidity needs and intervene through longer-term operations will be tested.
- **Institutional Adjustments:** SPDs will be affected; removing or reducing their role in the call money market requires alternative structures. Also, banks will need to manage reserves differently if minimum daily requirement is lowered or averaged differently.
- **Transmission and Rate Linkages:** Retaining WACR means that its correlations with other short overnight rates (market repo, TREPS etc.) must be strong; if these weaken (due to low activity), then even WACR may fail as an effective signal.

### Implications

- **For banks:** Changes in how they manage surplus / deficit funds over daily/weekly cycles; may need to adjust internal treasury functions.

- **For financial markets:** Better alignment of short rates with policy rates could reduce uncertainty, help bond yield stability, and improve monetary policy transmission. Interbank markets could get more active, depending on corridor adjustments.
- **For RBI:** Better control over liquidity, but forecasting and executing durable and fine-tuning operations becomes more important. Also, the RBI will need robust monitoring of different overnight segments.

### Conclusion

While the IWG's report proposes several changes to enhance the liquidity management framework, the article emphasizes the importance of addressing the identified concerns to ensure the effectiveness of the revised framework. A balanced approach that considers both control over short-term interest rates and the dynamics of the interbank market is crucial for the success of the proposed changes.

#### EXPECTED QUESTION FOR UPSC CSE

##### Prelims MCQ

Q. According to the review of "Liquidity Management Posers," which of the following is a concern regarding the RBI's proposed liquidity management framework revision?

- Increasing the 14-day Variable Rate Reverse Repo (VRRR) as the main liquidity tool
- Narrowing the interest rate corridor without empirical analysis
- Eliminating the Weighted Average Call Rate (WACR) as the operating target
- Allowing Standalone Primary Dealers (SPDs) unrestricted access to the Marginal Standing Facility (MSF)

**Answer: (b)**

## SHADOW SCHOOLING

**Why in News:** Shadow schooling in India is rising, with 33% of students relying on private coaching beyond classroom.

### Key Details

- A recent government survey reveals a stark divide: while government schools still dominate in villages, urban families are increasingly supplementing traditional schooling with paid coaching, reshaping the way millions of children experience education.

#### Shadow schooling

Additional private tutoring, coaching, home classes, or extra lessons beyond what happens in the formal school. It's meant to reinforce school lessons, help with exam preparation, or give a competitive edge.

### Extent and Growth

- About 33% of students are reported to rely on some form of private coaching.
- The practice is more common in urban areas (approx. 30.7%) than rural areas (approx. 25.5%).

### Cost disparity

- In government schools, the average annual spend per student is approx. ₹2,863.
- In private schools, it is approx. ₹25,002 (almost ×9).
- Urban households pay much more: average course fees approx. ₹15,143 per student vs approx. ₹3,979 in rural areas.
- **For coaching specifically:**
  - ✓ Urban approx. ₹3,988 per student annually
  - ✓ Rural approx. ₹1,793
  - ✓ The costs go up especially in higher secondary levels (urban approx. ₹9,950 vs rural approx. ₹4,548)
- Urban-rural enrolment & school type mix
  - ✓ Government schools still dominate in rural areas (around two-thirds of rural children attend government schools)
  - ✓ In urban areas, many parents increasingly favor private (unaided) schools. Only ~30.1% of urban children attend government schools.
- **Who pays/who bears burden:**
  - ✓ Families are overwhelmingly paying for these services; ~95% of students reported that their households are the main source of funding.
  - ✓ Scholarships or state assistance cover only a small fraction (~1.2%) of students for these extra services.

### Implications & Concerns

- The shadow schools are reinforcing inequality: wealthier, urban families often can afford extensive tutoring, while rural or lower-income families may be excluded or disadvantaged.
- Also, it challenges whether policy (especially under NEP / public schooling reforms) can truly bridge the gap or reduce dependence on private coaching.

### Key Issues

- **Education as a commodity vs public good**
  - ✓ Ideally, a strong public schooling system should reduce the need for external tutoring. The fact that many students seek "extra classes" suggests that the formal system is perceived (or experienced) as insufficient in many respects: in quality, exam alignment, or individual attention.
- **Quality and accountability in regular schools**
  - ✓ Large class sizes/lack of teacher-student attention
  - ✓ Curriculum not well taught in class
  - ✓ Pressure of competitive exams pushing students to supplement
  - ✓ Gaps in foundational learning (students fall behind and need catch-up)

If the regular schooling system is strengthened (teacher training, evaluation, smaller classes, remedial support, etc.), it might reduce dependence on private tuition.
- **Equity & access**
  - ✓ The cost of coaching is much higher in urban areas and for higher grades. Families with more resources can invest heavily, giving their children extra

advantage. Those who can't afford it may fall behind. This exacerbates inequality, rather than leveling the playing field.

- **Rural disadvantage**

- ✓ Even though a slightly smaller proportion of rural student's report taking coaching, their ability to access high-quality tutors (especially for advanced or specialized content) is likely much lower. Also, per-unit cost burdens may be higher relative to income there.

- **Behavioral/ cultural pressure**

- ✓ The drive toward "extra classes" is partly cultural: parents want their children to "do better than others," especially in competitive exams. Even if schooling improved, some families might still prefer to invest in coaching.

- ✓ Partner with ed-tech platforms to provide low-cost or free access to online content in regional languages.

- **Regulate and Monitor Private Coaching**

- ✓ Bring coaching centers under light-touch regulation for transparency, quality assurance, and student safety.
- ✓ Prevent exploitative fees or unethical practices.

- **Reduce Exam Pressure**

- ✓ Shift the focus from rote learning to conceptual understanding.
- ✓ Redesign assessments to reduce the coaching industry's grip on competitive success.

- **Incentivize Rural Education Investments**

- ✓ Offer scholarships, subsidies, or tax breaks to NGOs and private players to expand high-quality coaching access in rural areas.

### Pros and Cons of Shadow Schooling

Pros:	Cons:
✓ Extra academic support for struggling students	✓ Reinforces educational inequality (rich can afford more help)
✓ Personalized attention	✓ Creates dependency on external help
✓ Competitive edge in exams	✓ Adds pressure/stress for students
✓ Helps cover syllabus gaps or poor teaching in school	✓ May reduce attention to regular schooling
	✓ Can be exploitative, with unregulated or poor-quality tutors
	✓ Promotes academic overholism (school + tuition + self-study overload)

### Conclusion

The rise of shadow schooling reflects gaps in formal education and growing inequality. To reduce this reliance, schools must be strengthened, and access to quality support must be made equitable. A robust public education system should make extra coaching a choice—not a necessity.

## EXPORT PROMOTION MISSION

**Why in News:** The government is considering Rs. 25,000 crore support packages for exporters over six financial years (2025-2031) under the new Export Promotion Mission, announced in the Union Budget.

### Key Details

- The proposal has been sent to the Expenditure Finance Committee (EFC) of the finance ministry.
- The objective is to provide affordable & easier credit to exporters, particularly to help them cope with global trade disruptions (e.g. U.S. tariffs).
- Nodal Ministry: Ministry of Commerce and Industry, Government of India.

### About New Export Promotion Mission

- An Export Promotion Mission is a strategic initiative undertaken by governments, trade organizations, or industry associations to help businesses especially small and medium enterprises (SMEs) expand into international markets.
- The package is structured into two schemes:
  - ✓ **Niryat Protsahan** (approx. ₹10,000 crore+):
    - Interest equalisation support (approx. ₹5,000 crore over 6 years)
    - Alternative trade finance instruments
    - A credit "card" for e-commerce exporters
    - Other mechanisms to bridge liquidity gaps
  - ✓ **Niryat Disha** (approx. ₹14,500 crore+):
    - Support for export quality compliance (approx. ₹4,000 crore)

### Global context

- Shadow education is not unique to India. It's widespread in:
  - ✓ Japan (juku or cram schools)
  - ✓ South Korea (hagwons)
  - ✓ China (before recent crackdowns)
  - ✓ Egypt, Turkey, Bangladesh, Kenya (also see tutoring as norm in urban areas)
- But India's scale and diversity (urban/rural, rich/poor) make the problem more complex.

### Way forward

- **Strengthen Public Schooling**

- ✓ Improve teacher training, infrastructure, and classroom delivery.
- ✓ Ensure effective implementation of NEP 2020 reforms, including foundational literacy and numeracy programs (like NIPUN Bharat).
- ✓ Introduce doubt-clearing sessions, remedial support, and bridge courses within schools.

- **Make Quality Supplementary Education Equitable**

- ✓ Launch government-sponsored after-school tutoring programs, especially in rural and underprivileged areas (e.g. digital learning vans, community centers).

- Branding, logistics, export warehousing, overseas market development (approx. ₹4,000 crore)
- Capacity building to bring more Indian enterprises into global value chains.
- Export sectors expected to be under pressure include textiles, chemicals, leather & footwear, due to high U.S. tariffs.

### Export Statistics

- In July, exports rose 7.29% to USD 37.24 billion.
- For April–July 2025-26, exports rose ~3.07%, while imports rose ~5.36%, widening the trade deficit.

### Key Components

- **Delegation Composition:** Government officials (e.g. trade ministers), Exporting companies, Trade promotion agency representatives, Industry experts
- **Activities Typically Involved:** B2B matchmaking and networking events, Trade fairs or exhibitions, Meetings with government or regulatory bodies, Site visits to local businesses or distributors, Market briefings or seminars
- **Target Countries:** Chosen based on trade potential, strategic partnerships, or demand for specific products/services.

### Objectives of Export Promotion Mission

- **Promote National Exports:** Showcase domestic products or services to potential buyers in foreign markets.
- **Market Access:** Help businesses explore and access new international markets.
- **Trade Relationships:** Build partnerships with foreign importers, distributors, and government agencies.
- **Investment Attraction:** Sometimes missions also aim to attract foreign direct investment (FDI).
- **Understand Market Trends:** Gather intelligence on consumer behavior, regulations, and competition abroad.

### Benefits

- Increased sales and export volume.
- Greater brand visibility in new markets.
- In-depth understanding of legal and logistical challenges.
- Networking and business development opportunities.
- First-mover advantage in emerging markets.
- Diversification & market development assistance.

### Associated Risk/Challenges

- Implementation delay: Getting EFC: Cabinet approval, then operationalizing the schemes will take time.
- Absorption capacity of MSMEs may be limited if the schemes are too complex to comply with.
- Leakage / misuse risk unless monitoring, audits and oversight are robust.
- Global trade environment: Even with support, exporters will still face external headwinds (tariffs, supply chain disruptions, currency volatility).

### Implications for Exported/ Stakeholders

- Exporters should prepare to tap into these schemes — e.g. keep books in order, meet compliance, be ready for audits.
- Focus on value addition, branding, quality standards will pay off under the support regime.
- This may shift competitive dynamics, especially for sectors with many small exporters.

### Way Forward

- Fast-track approvals to launch the mission without delay.
- Simplify access for MSMEs via a single-window digital portal.
- Promote market diversification through global outreach and trade data.
- Upgrade quality infrastructure for global compliance.
- Embed monitoring with audits and impact evaluations.
- Support exporter clusters to scale and share resources.
- Engage industry bodies for real-time feedback and alignment.

### Conclusion

The new Export Promotion Mission is a timely step to strengthen India's export ecosystem. If implemented efficiently, it can empower MSMEs, boost global competitiveness, and bring India closer to its \$1 trillion export goal.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

Q. Which of the following is **not** a key component of the new export promotion mission?

- Interest equalisation support for exporters
- Branding and quality compliance for global markets
- Direct cash transfers to consumers
- Capacity building to integrate MSMEs into global value chains

**Answer: (c)**

#### Descriptive Question

Q. Discuss the key features of the export promotion mission, and critically examine the challenges and opportunities it presents for India's export sector, particularly MSMEs. [250 Words] [15 Marks]

### INDEX OF INDUSTRIAL PRODUCTION (IIP)

**Why in news:** The Quick Estimate of Index of Industrial Production (IIP) will now be released on 28th of every month (or next working day if 28th is a holiday).

#### Key Highlights

- In July 2025, the Index of Industrial Production (IIP) grew by 3.5% (year-on-year).
- The growth was driven by manufacturing, which expanded by 5.4% in July 2025.
- The performance by sectors:
  - ✓ **Mining:** – 7.2% (a contraction)
  - ✓ **Manufacturing:** +5.4%
  - ✓ **Electricity:** +0.6%

- The overall IIP index value for July 2025 was 155.0, compared to 149.8 in July 2024.
- Among manufacturing sub-sectors, the top contributors in July 2025 were:
  - ✓ Manufacture of basic metals: +12.7%
  - ✓ Manufacture of electrical equipment: +15.9%
  - ✓ Manufacture of other non-metallic mineral products: +9.5%
- From a use-based classification perspective (i.e. by type of goods), growth rates in July 2025 relative to July 2024 were:
  - ✓ Primary goods: – 1.7%
  - ✓ Capital goods: +5.0%
  - ✓ Intermediate goods: +5.8%
  - ✓ Infrastructure / Construction goods: +11.9%
  - ✓ Consumer durables: +7.7%
  - ✓ Consumer non-durables: +0.5%

### About the Index of Industrial Production

- The Index of Industrial Production (IIP) is a key economic indicator that measures the growth in the volume of industrial production in a country over a given period of time.
- IIP tracks the output of various industrial sectors, including:
  - ✓ Mining
  - ✓ Manufacturing
  - ✓ Electricity
- It's published monthly by India's Ministry of Statistics and Programme Implementation (MoSPI) and gives a snapshot of the industrial sector's health.

### How is IIP Measured

- Base Year: Currently, the base year for IIP is 2011-12 = 100
- Frequency: Published monthly
- The index is calculated using data from companies and factories in India.

### IIP sectoral classification

- IIP is classified in two ways

#### 1. Sector-Wise:

Sector	Weight (%)
Manufacturing	Approx. 77.6
Mining	Approx. 14.4
Electricity	Approx. 8.0

#### 2. Use-based classification:

This refers to the end use of goods produced:

Category	Example Items
Primary goods	Raw material (coal, crude oil)
Capital goods	Machinery, tools
Intermediate goods	Components used in final products
Infrastructure/ Construction goods	Steel, Cement
Consumer durables	TVs, Washing machines
Consumer non-durables	Food, toiletries

### Importance of IIP

- ✓ Reflects industrial activity and economic health
- ✓ Helps policymakers and RBI in monetary policy decisions
- ✓ Guides investors and economists on economic trends
- ✓ Used to forecast GDP growth

### Conclusion

The Index of Industrial Production (IIP) is a key indicator of industrial sector performance in India. The July 2025 data show 3.5% growth, driven mainly by manufacturing, while mining contracted. IIP helps track economic momentum, guiding policymakers and investors in assessing short-term industrial trends and supporting informed economic decisions.

#### EXPECTED QUESTION FOR UPSC CSE

##### Prelims MCQ

Q. Which of the following sectors has the highest weight in India's Index of Industrial Production (IIP)?

- (a) Mining
- (b) Electricity
- (c) Manufacturing
- (d) Consumer Durables

**Answer: (c)**

### ALL INDIA DEBT AND INVESTMENT SURVEY (AIDIS) & SITUATION ASSESSMENT SURVEY (SAS) OF AGRICULTURAL HOUSEHOLDS

**Why in News:** National Statistics Office (NSO), under the Ministry of Statistics and Programme Implementation (MoSPI), is undertaking extensive household surveys covering a variety of social and economic subjects.

#### Key Details

- Among its key surveys, two are particularly significant for the country's financial and agricultural sectors — the All-India Debt and Investment Survey (AIDIS) and the Situation Assessment Survey (SAS) of Agricultural Households.
- These nationally representative surveys are set to take place from July 2026 to June 2027.
- The NSSO has been conducting these surveys regularly since its establishment in 1950.
- The NSS has become an essential source of official statistics for evidence-based policymaking, documenting household welfare, consumption, employment, health, assets, indebtedness and related aspects of socio-economic development.

- ✓ **AIDIS is focused on households' financial conditions:** debt, investments, assets, and liabilities across rural and urban sectors.
- ✓ **SAS is focused on agricultural households:** their income & expenditures, land and livestock, crop/livestock production, use of technology, access to credit and government schemes, etc.

### All-India Debt & Investment Survey (AIDIS)

- It gives data on household indebtedness, asset and investment ownership, sources of debt (institutional vs non-institutional), distribution of assets, etc., across both rural & urban India.
- Historically, it evolved from the All-India Rural Credit Survey of 1951-52, which later (1961-62) expanded to include investments, so becoming Debt & Investment Survey.

### Situation Assessment Survey of Agricultural Households (SAS)

- Also run by NSO / previously NSSO (before reorganisation). This survey focuses on agricultural households – their incomes, expenditures, production, access to credit, technologies, etc.
- First conducted in 2003 (SAS-59 round) to understand economic conditions of farmer households. Then a more comprehensive version in 2013 (NSS 70th round). The 2019 (77th round) also had a SAS component.
- Both SAS & AIDIS are planned again for July 2026 to June 2027.

### Key Definitions & Coverage

- **Agricultural Household:** In SAS, “agricultural household” means a household receiving some income from agricultural production (field crops, horticulture, livestock, plantation, fisheries etc.) in the last 365 days. It includes households with land or without land but with agricultural activity.
- Note: SAS excludes households whose entire income comes merely from being agricultural labour (i.e. pure labours) in some rounds.
- Also, there is a minimum agricultural produce income threshold — in 2013 it was Rs 3,000, in 2019 it was raised to Rs 4,000 to adjust for inflation. Households below that aren't counted as “agricultural households” in SAS.

### Sample coverage

- SAS covers rural areas primarily, since agricultural households are mostly rural. But in cases of agriculture-related activity, it captures households even without land.
- AIDIS covers both rural and urban households. Assets, liabilities etc are relevant across both.

### What is surveyed

- Household characteristics: demographics, education, etc.
- Income from agricultural activities (crops, livestock etc.) and non-agricultural / wage / other sources.
- Expenditure levels and pattern.
- Productive assets: land, livestock, equipment, etc.
- Indebtedness, liabilities, credit sources and terms.
- Use of technology, awareness, access to modern inputs.
- Land & livestock holdings in more recent rounds (2019) are merged/integrated into SAS.

### Way Forward

Stakeholders should actively engage with the consultation process, providing constructive feedback. Strengthening data collection, ensuring transparency, and leveraging digital tools will enhance the accuracy and utility of survey outcomes.

### Conclusion

The upcoming AIDIS and SAS surveys mark a vital step in understanding India's financial and agricultural landscape. Timely, data-driven insights from these will support more targeted policymaking and efficient resource allocation, especially for rural and farming communities.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

Q. The Situation Assessment Survey (SAS) primarily focuses on:

- (a) Industrial production trends in urban areas
- (b) Investment patterns of urban households
- (c) Incomes, expenditures, and assets of agricultural households
- (d) Employment trends in the service sector

**Answer: (c)**

#### Descriptive Question

Q. The SAS and the AIDIS reveal structural challenges facing India's rural and agricultural economy. Discuss how the findings from these surveys can inform policy measures aimed at improving farmer welfare and rural credit delivery. [250 words] [15 Marks]

### INDIA CONSUMER OUTLOOK REPORT

**Why in News:** As 50% tariffs imposed by the US, Indian economic growth could dip by 30-80 basis points this fiscal year, and thousands of workers in sectors such as textiles and gems & jewellery are likely to be laid off.

### Key Details

- Even after heavy tariff pressures from the US, India's internal demand engines (low inflation, income growth, consumer sentiment, employment) are strong enough to keep the consumer upbeat and propel growth.
- Since consumption drives more than half of India's economy, a strong consumer sentiment will help India offset some of the tariff impact.
- In a latest 'India Consumer Outlook' report by BMI (a Fitch Solutions company) paints an optimistic picture of consumer sentiments and spending in India over 2025 and 2026.
- BMI sees strong household spending growth in 2025 (6.9% YoY in real terms) and healthy growth (5.5%) in 2026.
- The consumer confidence has rebounded: the Current Situation Index (CSI) and Future Expectations Index (FEI) are well above pre-pandemic levels.
- Inflation has moderated significantly: July 2025 inflation was around 1.55% YoY, with food inflation 1.8%. This low inflation gives households more disposable income.

- The labor market remains resilient: unemployment had dropped to 5.2 % (as of July 2025).
- Rising real wages/purchasing power: The average households will enjoy about 29 % higher purchasing power in 2025 compared to 2019.
- Household debt levels remain manageable (about 41.9 % of nominal GDP) and are not expected to become a major drag on consumer spending.
- There are cautions about risks — global inflation, trade tensions, supply chain disruptions, and potential external demand shocks.

### India Consumer Outlook (2024-25) summary

- **Strong Growth in Consumer Spend**
  - ✓ India's private consumption has grown to US\$2.1 trillion in 2024, having almost doubled since 2013, with a CAGR of ~7.2%.
  - ✓ The retail & consumer sector was estimated at ~US\$1.06 trillion (recent figure) and is projected to reach ~US\$1.93 trillion by 2030.
- **E-commerce & Digital Influence Expanding**
  - ✓ In 2024, online retail was about US\$75 billion; expectations are that by 2030 this will rise to ~US\$260 billion.
  - ✓ Digital touchpoints are increasingly influencing purchase decisions: e.g. online marketplaces, peer reviews, YouTube reviews, etc.
- **Demographics & Regional Growth**
  - ✓ Gen Z is a rising force: projected to account for 43% of India's total consumption in 2025, with direct spending power estimated at around US\$250 billion.
  - ✓ Emerging (Tier II/III) cities now contribute a much larger share of e-commerce transactions — over 60%.
  - ✓ Rural consumption is catching up somewhat, but urban/rural gaps remain meaningful.
- **Premiumization & 'Made in India' Preference**
  - ✓ Consumers are trading up — more spending on higher-end or aspirational products in categories like fashion, electronics, and personal care.
  - ✓ Stronger preference for domestically made goods: 'Made in India' is increasingly seen as a positive factor in consumer choices.
- **Consumer Durables & FMCG Trends**
  - ✓ Big jump in spending on durables in FY25; in particular electronics and appliances.
  - ✓ Regulatory & policy support (PLI schemes, FDI, manufacturing incentives) is helping boost production and local supply of durables.
- **Resilience of Consumer Sentiment**
  - ✓ Even in times of inflation or economic uncertainty, surveys indicate Indian consumers remain relatively optimistic and many plan to increase spending.
  - ✓ Tax cuts, reduced GST on certain items, and stabilising prices are helping revive demand in some segments.

### Strength/ Supporting factors

- **Low inflation is a big enabler:** When inflation is very low (especially food inflation), households find more breathing room in their budgets. This supports discretionary spending.
- **Domestic dynamics matter more now:** Given global headwinds, the resilience of the domestic economy (services, retail, internal demand) is crucial. The article emphasizes that the consumer story is being driven more locally than externally.
- **Broad-based confidence:** The rebound in confidence across urban, semi-urban, and rural India is a strong positive sign: it indicates the recovery is not just limited to elites or big cities.
- **Moderate debt burden:** With household debt still at tolerable levels and interest rates expected to ease, the servicing burden isn't likely to choke spending.

### Risks and Weaknesses

- **External shocks remain real:** Even if domestic demand is strong, export-oriented sectors could suffer from weaker global demand or further tariff escalation. Spillovers may drag on growth.
- **Sustainability of low inflation:** It's one thing to have very low inflation for some months; it's another to maintain it in the face of supply chain disruptions, commodity price shocks, or import cost rises.
- **Job creation and informal sector vulnerabilities:** The article points to a low unemployment rate, but much of Indian employment is in the informal sector. Downturns often hit informal workers hardest. If global demand weakens, layoffs may accelerate especially in export-linked industries.
- **Income inequality & uneven recovery:** Much of the gains may accrue to middle/upper income groups, and rural or disadvantaged segments may lag. The positive headline numbers may mask inequality in experience.
- **Dependence on optimism:** Consumer confidence is fragile — a negative shock (say, global recession, inflation surprise) could reverse sentiment fast.
- **Currency/import pressures:** Tariffs and global inflation could worsen import prices or depreciation pressures on the rupee, eroding gains.

### Way Forward

To sustain momentum, policymakers should focus on boosting rural demand, supporting job creation (especially in the informal sector), and guarding against inflationary pressures. Strengthening supply chains and encouraging domestic manufacturing can further insulate the economy from global turbulence.

### Conclusion

Despite global uncertainties like US tariff hikes, Indian consumers remain resilient—buoyed by low inflation, rising real incomes, and improving job markets. Strong domestic fundamentals are cushioning the impact of external shocks.

## EXPECTED QUESTIONS FOR UPSC CSE

### Prelims MCQ

**Q.** What is the primary reason behind the upbeat sentiment of Indian consumers despite the global tariff turmoil?

- (a) Rising unemployment rates
- (b) Low inflation and rising real incomes
- (c) Heavy household debt burden
- (d) Decline in domestic demand

**Answer: (b)**

## GDP GROWTH RATE HITS 7.8%

**Why in News:** India's GDP growth for the April–June 2025 quarter rose to 7.8 %, up from 6.5 % in the same quarter a year ago.

### Key highlights

- This is the fastest quarterly growth in five quarters, and it surpasses many estimates (RBI had projected ~6.5 % for Q1).
- The strong sectors included services (9.3 %), manufacturing (7.7 %), and construction (7.6 %).
- Agriculture grew by 3.7%.
- Private consumption rose 7%; gross fixed capital formation (investment) increased 7.8%.
- Nominal GDP growth was 8.8% (due to low inflation/deflators).
- On the flip side, mining & quarrying declined about 3.1 %, and utility services saw modest growth (0.5 %).

### Positives

- **Momentum:** Indicates the economy had a strong start to the year, with both consumption and investment contributing.
- **Confidence booster:** Beats expectations, which can have positive effects on business sentiment, markets, and investor confidence.
- **Policy space:** With strong growth, the government may have more leeway to push infrastructure and other growth-supporting measures.

### Risks & Qualifications

- **Sustainability:** One strong quarter does not guarantee the same pace will hold over the full year. Slower export demand or external shocks could drag growth.

- **Tariff pressures:** The U.S. has imposed 50 % tariffs on certain Indian imports tied to oil purchases from Russia, which could hurt export-oriented sectors.
- **Reversal of tailwinds:** If government spending, which often helps in a strong quarter, slows or if global demand weakens, growth could cool.
- **Monetary policy constraints:** Such a strong number might reduce room for interest rate cuts in the near term, as the central bank would worry about inflationary pressures. Some economists are already flagging that the 7.8 % figure may dampen expectations of rate cuts in the upcoming policy review.

### Revised forecasts and estimates for FY26

Source/Institution	Revised growth estimate FY26	Key notes
RBI	6.8%	The Reserve Bank of India has raised its GDP growth projection for FY26 to 6.8 %.
Fitch	6.9%	Cites strong domestic demand as a driver, though cautions moderation in the second half.
IBEF/ Government	6.3% - 6.8%	In its Economic Survey, the government had projected a range of 6.3–6.8 %.
Ind-Ra (India Ratings)	6.3%	Recently revised downward from earlier estimates, citing export and investment headwinds.
S&P Global ratings	6.3%	Cut its forecast citing uncertainty from U.S. tariff policy.
UBS	6.0% (earlier cut) – 6.4% (upgrade)	Initially downgraded due to global headwinds, later revised upward due to resilient domestic demand.
Nomura	6.2%	A more conservative forecast, citing some weakening signals in investment and exports.

# ENVIRONMENT & GEOGRAPHY

## COP-30: FROM NEGOTIATION TO IMPLEMENTATION IN GLOBAL CLIMATE GOVERNANCE

**Why in News:** The **30th Conference of Parties (COP-30)** under the **United Nations Framework Convention on Climate Change (UNFCCC)** will be held in **November 2025** in **Belem, Brazil**, located at the edge of the Amazon rainforest. This year's summit is expected to focus less on new global negotiations and more on **implementing the existing commitments** made under previous climate accords, particularly the **Paris Agreement (2015)**.

### Key Details

- **Event:** COP-30 (Thirtieth Conference of Parties to UNFCCC)
- **Host Country:** Brazil
- **Venue:** Belem, a city representing the ecological importance of the Amazon region
- **President-Designate:** **André Corrêa do Lago**, a Brazilian diplomat and environmental leader
- **Key Objective:** To emphasize implementation of agreed climate solutions over drafting new negotiation texts
- **Backdrop:** The **U.S. withdrawal from the Paris Agreement** and ongoing **global trade and political uncertainties** have raised concerns about the strength of multilateral climate action.
- **Previous Milestone:** COP-29 (Baku, 2024) established a **new global climate finance goal of \$300 billion annually by 2030**, replacing the earlier \$100 billion target by 2025.

### Background: The Journey of Global Climate Governance

- The **UNFCCC**, adopted in 1992, provides the foundation for international cooperation on climate change. Over the years, successive COPs have aimed to define and refine commitments for emission reduction.
- The most notable milestone came at **COP-21 in Paris (2015)**, where the **Paris Agreement** was signed. It obligated all countries—both developed and developing—to undertake actions to limit global temperature rise to **well below 2°C**, and preferably to **1.5°C**, compared to pre-industrial levels.
- However, scientific assessments such as the **UNEP Emissions Gap Report (2024)** indicate that current national pledges (Nationally Determined Contributions – NDCs) would still lead to a **2.6°C rise** by 2100, showing a significant **implementation gap** between commitments and outcomes.

### Core Focus of COP-30: From Texts to Tangible Action

- The Brazilian Presidency of COP-30 has proposed a new direction: **to separate the process of negotiation from the process of implementation.**

- The emphasis is on putting existing agreements into practice rather than creating new ones.

### Major Areas of Focus

1. **Accelerating Renewable Energy Transition:** Countries will be encouraged to expand renewable energy capacity through technological cooperation, investment incentives, and knowledge-sharing mechanisms. India's International Solar Alliance (ISA) can serve as a model for global collaboration in solar energy.
2. **Forest Conservation and Reforestation:** As the host nation, Brazil plans to highlight the critical role of the **Amazon rainforest** in global carbon sequestration and biodiversity conservation. Enhanced Forest management, ecosystem restoration, and prevention of deforestation will be key themes.
3. **Climate-Resilient Agriculture:** COP-30 will promote sustainable farming practices, soil conservation, and drought-resilient crop varieties, especially to safeguard food security in vulnerable regions.
4. **Mobilizing Climate Finance:** Despite progress in COP-29, the current target of \$300 billion by 2030 remains well below the estimated requirement of **\$1.3 trillion annually** for achieving Paris goals. The summit will focus on ensuring predictable, transparent, and equitable access to climate finance for developing nations.
5. **Adaptation and Local Action:** A stronger push for local-level adaptation measures will be made by involving states, cities, and civil society organizations in climate action.

### Role of India and Brazil in COP-30

- Both **India and Brazil** occupy crucial positions as emerging economies and members of the **Global South** as well as the **BASIC group** (Brazil, South Africa, India, and China).
- Their coordinated efforts can shape the discourse towards **equity-based and development-friendly climate action.**
- **Key Contributions:**
  - ✓ Advocating the principle of **Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC)**, which recognizes historical differences in emissions.
  - ✓ Promoting **South-South cooperation** for technology exchange, research collaboration, and joint adaptation projects.
  - ✓ Showcasing successful models of **renewable energy adoption**, such as India's solar and wind power expansion and Brazil's biofuel programme.
  - ✓ Ensuring that developing nations' developmental aspirations are not compromised by stringent emission targets.

## Involvement of Non-Governmental and Sub-National Actors

- Recognizing the limitations of intergovernmental negotiations, the COP-30 Presidency has underlined the importance of involving **non-governmental entities** — such as local governments, private industries, think tanks, and citizen groups.
- Such a decentralized approach can help:
  - ✓ Identify region-specific climate solutions,
  - ✓ Promote innovation through start-ups and clean technology firms, and
  - ✓ Strengthen accountability and transparency in implementation.
- Examples include urban renewable energy missions, municipal waste management programmes, and corporate commitments to net-zero operations.

## Major Challenges

1. **Inadequate Climate Finance:** Despite enhanced pledges, developed nations have consistently fallen short of their financial commitments under the UNFCCC, leading to mistrust and slower progress.
2. **Political and Economic Instability:** The retraction of the U.S. from the Paris Agreement and global tariff disputes threatens international cooperation.
3. **Implementation Gaps:** Many countries lack institutional mechanisms, data systems, and skilled capacity to execute their climate plans effectively.
4. **Technological Divide:** Limited access to clean technologies and intellectual property restrictions continue to disadvantage developing economies.
5. **Equity and Justice Concerns:** The burden of adaptation often falls disproportionately on poorer nations that have contributed least to the problem of global warming.

## India's Approach and Expectations

- India, committed to achieving **Net Zero by 2070**, has submitted updated **Nationally Determined Contributions (NDCs)** under the Paris Agreement.
- **Its major targets include:**
  - ✓ Achieving **50% of electric power capacity from non-fossil sources** by 2030.
  - ✓ Reducing **emission intensity of GDP by 45%** from 2005 levels by 2030.
  - ✓ Expanding carbon sinks through the **National Mission for Green India** and the **National Hydrogen Mission**.
- At COP-30, India is expected to emphasize **climate justice, technology transfer, and equitable access to finance**, aligning environmental responsibility with developmental priorities.

## Conclusion: Turning Promises into Progress

COP-30 marks a **decisive moment** in the global climate journey a chance to transform commitments into measurable outcomes. By emphasizing **implementation, cooperation, and inclusivity**, it seeks to make climate governance more practical and result-oriented. The leadership of countries like

**India and Brazil** can inspire a balanced framework that upholds both **environmental sustainability** and **economic equity**.

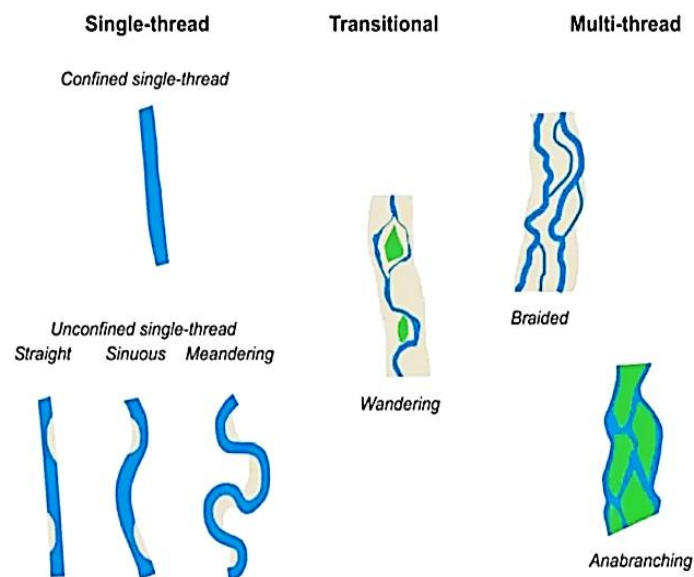
Ultimately, the success of COP-30 will depend on whether nations can move beyond words to **collective, sustained, and science-based climate action** that secures a livable planet for future generations.

## SINGLE-THREAD VERSUS MULTI-THREAD RIVERS

**Why in News:** Geographers at the **University of California Santa Barbara (UCSB)**, have discovered the physical mechanism that why some rivers flow as a single channel, while other split into multiple threads.

### Research methodology

- They analyse the dynamics of **84 rivers over 36 years (1985-2021)** using **satellite imagery** and a novel processing technique called **particle image velocimetry**.
- Over 4 lakh measurements compared across different climates, slopes and water flows.
- **Indian Rivers: Ganga** (Patna, Farakka, Paksey) and **Brahmaputra** (Bahadurabad, Pandu, Pasighat, upper Himalaya) were also considered.
- This knowledge has important implications for flood management, ecosystem services, and river restoration worldwide.



### Key findings of the study

- **Single-thread rivers:**
  - ✓ They are characterized by equilibrium between bank erosion and bar accretion.
  - ✓ Material eroded from one bank is balanced by deposition on the opposite bank, maintaining stable width.
- **Multi-thread rivers:**
  - ✓ They exhibit higher erosion relative to deposition.
  - ✓ Continuous widening and splitting of channels result in braided systems, where instability dominates and leads to dynamic channel shifts.
- In other words, erosion drives rivers to split, creating braided or multi-thread rivers.

### Erosion

- It is the process where soil, rocks, or land surface get worn away and carried away by natural forces like water, wind, or ice.

### In rivers

- Erosion happens when the flowing water wears away the riverbanks or riverbed. Fast-moving water can pick up and carry soil and rocks downstream. Over time, erosion can change the shape of the river, making it wider, deeper, or causing it to change course.

### Role of Plants

Other scientists studied how plants on riverbanks affect river bends:

- Vegetated riverbanks cause rivers to bend differently and form natural levees (raised banks), which limits how much the river curves and moves.
- This affects how river bends migrate over time.

### About Indian Rivers

- The Brahmaputra is a classic braided river, with many channels that erode their banks fast and keep splitting.
- Multi-thread rivers like the Brahmaputra are unstable and constantly changing.

### Human interference

- Human activities such as damming, embankment construction, sediment mining, and land clearing have altered natural river flows, often forcing braided rivers into single channels.
- This disrupts their natural dynamics and increases flood risks.

### Nature based solutions

Experts suggest that letting river flow naturally, removing artificial embankments, restoring floodplains, and planting vegetation along riverbanks can help manage floods better and reduce risks.

### Implications for flood risk and restoration

- This study highlights the necessity of regularly updating river flow measurement techniques, particularly in multi-thread rivers, due to the evolving shapes of their channels over time.
- By managing rivers with a comprehension of their inherent instability, flood prediction and mitigation can be enhanced.
- The restoration of natural river patterns fosters biodiversity and lessens the effects of extreme weather occurrences.
- This understanding is vital in areas such as India, where significant rivers are subjected to considerable human pressure.

### Why do some rivers stay single-threaded?

Single-thread rivers maintain a single, continuous channel. Their formation and stability are influenced by several factors:

- **Sediment Load:** Rivers carrying a consistent sediment load are less likely to deposit material that would split the flow into multiple channels.
- **Flow Velocity:** High flow velocities can prevent sediment deposition, maintaining a single channel.
- **Slope and Gradient:** Steeper gradients can lead to more erosive power, keeping the river confined to a single path.
- **Vegetation:** Riparian vegetation can stabilize riverbanks, reducing the likelihood of channel splitting.
- **Human Intervention:** Dams and levees can alter natural processes, leading to single-thread channels.

### Why do some rivers become multi-threaded (braided)?

Braided rivers consist of multiple interconnected channels separated by islands or bars. Their formation is influenced by:

- **High Sediment Load:** Excessive sediment can overwhelm the river's capacity to transport it, leading to deposition and channel splitting.
- **Variable Discharge:** Fluctuations in water flow can cause channels to form and disappear, creating a braided pattern.
- **Shallow Gradient:** Gentle slopes reduce the river's ability to carry sediment, promoting deposition and channel splitting.
- **Glacial Influence:** Glacial meltwater often carries large amounts of sediment, leading to braided river systems.
- **Tectonic Activity:** Earthquakes and other tectonic events can rapidly change river courses, leading to multi-thread systems.

### Conclusion

The study reveals that an imbalance between erosion and deposition shapes whether rivers stay single-threaded or become multi-threaded. This insight improves river management, flood forecasting, and restoration efforts. Understanding natural river dynamics is key to building resilience in ecosystems and communities, especially in regions heavily impacted by human activity.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQ

Q. Which of the following best explains why some rivers become multi-threaded rather than remaining single-threaded?

- (a) Equal rates of erosion and deposition on both banks
- (b) Presence of strong vegetation on riverbanks
- (c) Higher erosion compared to deposition on opposite banks
- (d) Fixed river width and depth over time

**Answer: (c)**

#### Descriptive Question

Q. Explain the key differences between single-thread and multi-thread river systems. Discuss the implications of these differences for flood management and river restoration efforts, especially in regions with high human intervention like India. [150 Words] [10 Marks]

## HIGH SEAS TREATY

**Why in News:** Recently, a significant achievement in ocean governance occurred as Morocco became the 60<sup>th</sup> country to ratify the High Seas Treaty, officially referred to as the **Agreement on Biodiversity Beyond National Jurisdiction (BBNJ)** or **UN High Seas Biodiversity Treaty**.

### Key Details

- The treaty is set to come into force next year.
- The treaty addresses one of the planet's major environmental challenges, protecting the oceanic areas that lie beyond any single nation's control.
- Treaty marks for the first time that international waters will be governed by a legally binding framework designed to protect marine biodiversity.
- These international waters encompass 2/3<sup>rd</sup> of the world's oceans and half of Earth's surface, making this agreement a development for marine conservation.

### Highlights of the treaty

- **Creation of Marine Protected Areas (MPAs)**
  - ✓ Countries can now establish legally protected zones in international waters.
  - ✓ Aimed at conserving biodiversity and endangered marine species.
  - ✓ Helps meet the "30x30" goal – protecting 30% of oceans by 2030.
- **Mandatory Environmental Impact Assessments (EIAs)**
  - ✓ Any planned activity in international waters (like deep-sea mining or industrial fishing) must undergo an EIA.
  - ✓ Ensures potential environmental harm is assessed before projects begin.
- **Equitable Sharing of Marine Genetic Resources**
  - ✓ Ensures fair access and benefit-sharing from valuable marine resources (e.g., organisms used in pharmaceuticals, cosmetics).
  - ✓ Particularly important for developing countries who often lack access to such resources or technologies.
- **Scientific and Technological Cooperation**
  - ✓ Promotes knowledge sharing, capacity-building, and access to marine technology.
  - ✓ Aims to help developing nations participate in and benefit from ocean science and conservation.

### International Waters

- International waters, also known as the high seas, are areas of the ocean that do not belong to any single country. These waters lie beyond national jurisdictions, usually starting 200 nautical miles (about 370 km) from a country's coastline.
- These oceanic expanses represent 64% of the ocean's surface and 95% of its volume.

### Legal Framework for Governance of the High Seas

- ✓ Provides a binding international legal structure for conserving marine biodiversity beyond national jurisdictions.

- ✓ Fills a major gap in international law (previously, these waters had weak or fragmented rules).

- **Enhanced Global Cooperation**
  - ✓ Encourages multilateral coordination on issues like overfishing, pollution, and climate impacts.
  - ✓ Boosts collaborative governance of the high seas essential for ocean health and peace.

### Significance of the treaty

- **Strengthens Global Cooperation:**
  - ✓ Encourages nations to work together on ocean governance.
  - ✓ Helps prevent conflicts over ocean resources, especially in disputed or overlapping areas.
  - ✓ Promotes scientific collaboration, technology sharing, and capacity-building, especially for developing countries.
- **Helps combat climate change:**
  - ✓ Healthy oceans absorb carbon dioxide and regulate the global climate.
  - ✓ Protecting marine life and ecosystems boosts ocean resilience against climate impacts like warming, acidification, and rising sea levels.
- **Creates a legal framework:**
  - ✓ For the first time, there's a legally binding international agreement to manage marine resources in international waters.
  - ✓ It enables fair sharing of benefits from marine genetic resources (like new medicines from deep-sea organisms).
  - ✓ Establishes guidelines for environmental impact assessments before activities like deep-sea mining or industrial fishing.

### Implementation challenges of the treaty

- **Difficult enforcement:** Vast Ocean areas are hard to monitor; no central authority.
- **Lack of resources:** Developing nations may lack fund, tech, and capacity.
- **Global coordination needed:** Requires cooperation among many countries and sectors.
- **Legal overlaps:** Treaty must align with existing ocean laws and bodies.
- **Political Resistance:** Some nations may prioritize economic interest over conservation.
- **Monitoring & Transparency:** Tracking violations like illegal fishing is technically challenging.
- **Slow ratification:** Many countries still need to ratify and implement the treaty.

### Other conventions relate to seas and oceans

Convention	Focus Area
UNCLOS – United Nations Convention on the Law of the Sea (1982)	Ocean governance, maritime zones, resources
MARPOL – International Convention for the Prevention of Pollution from Ships (1973/78)	Marine pollution from ships

London Convention (1972) & London Protocol (1996)	Dumping of waste at sea
Convention on Biological Diversity (CBD, 1992)	Marine biodiversity
RAMSAR Convention (1971)	Wetland (including coastal) conservation
FAO Code of Conduct for Responsible Fisheries (1995)	Sustainable fishing practices
International Convention on Salvage (1989)	Marine salvage and environmental protection
High Seas Treaty (2023)	Biodiversity in international waters

### Way Forward

For effective implementation, countries must ensure timely ratification, invest in satellite and surveillance technology, and strengthen international cooperation. Capacity-building for developing nations, transparent data sharing, and alignment with existing marine laws will be essential to protect biodiversity and promote sustainable use of high seas resources.

### Conclusion

The High Seas Treaty marks a historic step in global ocean governance, aiming to protect marine biodiversity beyond national boundaries. While challenges remain, its success depends on collective political will, scientific collaboration, and equitable participation to ensure the health and sustainability of our shared ocean heritage.

### EXPECTED QUESTION FOR UPSC CSE

#### Prelims MCQ

Q. With reference to the recently adopted High Seas Treaty, consider the following statements:

1. It is the first legally binding international agreement to protect marine biodiversity in areas beyond national jurisdiction.
2. It allows for the creation of Marine Protected Areas (MPAs) in international waters.
3. It is legally binding under the United Nations Convention on the Law of the Sea (UNCLOS).
4. It has been ratified by all UN member states and is currently in force.

Which of the statements given above are correct?

- (a) 1, 2 and 3 only
- (b) 2, 3 and 4 only
- (c) 1 and 4 only
- (d) 1, 2, 3 and 4

**Answer: (a)**

### 'SUNSET CLAUSE' FOR FOREST RIGHTS

**Why in News:** A United Nations report on the progress of the Forest Rights Act in India has suggested that there may be a need to build consensus for a "sunset clause".

### Key Details

- The UNDP released a report titled **"Securing Rights, Enabling Futures- Policy lessons from FRA and Future Pathways"**.
- It reviews the implementation of the **Forest Rights Act (FRA), 2006** over the last 20 years in states like Chhattisgarh, Odisha and Maharashtra.
- The report addresses key bottlenecks in recognizing and vesting **Individual Forest Rights (IFR)** and **Community Forest Rights (CFR)**.

### Forest Right Act, 2006

- The FRA, 2006 was created to recognize and protect the rights of Scheduled Tribes (STs) and other forest-dwelling communities who have been living in and depending on forest for generations.
- The law gives them:
  - ✓ Rights over forest land
  - ✓ Rights to collect and sell forest produce
  - ✓ Rights to protect and manage forest

### Current Status of FRA

- 2.32 crore acres of forest land have been given under FRA
- Only 1.88 crore acres are community rights
- But the potential is around 9.88 crore acres – which means only about 18% of possible rights have been recognized

### Problems Identified

- **Under-implementation:**
  - ✓ Many eligible communities haven't received rights
  - ✓ Some individual titles were wrongly given
- **Poor record-keeping:**
  - ✓ Titles have gone 'missing' from government records (eg. Chhattisgarh)
  - ✓ Lack of centralized data system
- **Departmental conflicts:**
  - ✓ Tribal Welfare Department and Forest Departments often disagree
  - ✓ No clarity on how and when community forest management plans should be accepted

### Sunset Clause

- A sunset clause is a time-bound deadline after which no new forest rights claims would be entertained under the FRA.
- After this date, the process of recognition and vesting of rights would effectively cease.

### UNDP's position

- UNDP does not recommend immediate enforcement of a sunset clause.
- Instead, it calls for "building a consensus among stakeholders on introducing a sunset clause".

### Rationale behind the Suggestion

- Encourage timely implementation of Forest Right Act (FRA).

- Prevent indefinite delays in processing claims.
- Improve administrative accountability and planning.
- Push state machinery to close pending cases effectively.

#### Concerns with the Sunset Clause

- May exclude genuine claimants who were unable to apply earlier due to lack of awareness, poor documentation, and state-level inaction.
- Risks violating the spirit of FRA, which is to correct historical injustice.
- May lead to arbitrary exclusions if applied without consensus and safeguards.

#### Need for Gender Equality

- The report highlights that women are often left behind in forest rights.
- **Suggestions:**
  - ✓ Collect data separately for men and women.
  - ✓ Include women leaders in planning and implementation.
  - ✓ Link forest rights to women-focused livelihood schemes.

#### Missing focus on Biodiversity & Traditional knowledge

- **Section 3(1)(k) of FRA** allows communities to claim rights related to:
  - ✓ Biodiversity
  - ✓ Traditional Knowledge
  - ✓ Intellectual Property (IP)
- **But the report says:**
  - ✓ No data exists on whether these rights are being claimed
  - ✓ There's potential to monetize traditional knowledge, but it's unexplored

#### UNDP Recommendations

- Strengthen inter-departmental coordination
- Ensure post-recognition support for livelihood and development
- Improve gender inclusivity in forest rights recognition
- Maintain accurate and transparent record-keeping
- Build institutional capacity for smooth implementation
- Involve Gram Sabhas in decision making
- Recognize forest rights holders under all livelihood and social welfare schemes
- Create a National Tribal Policy for the next 5 years
- Use Article 275(1) of the constitution to fund tribal and forest governance programs

#### Way forward

- Build trust and transparency in implementation
- Provide capacity building and legal awareness to tribal communities
- Encourage community-led forest management
- Focus on long-term programmes, not just quick scheme

#### Conclusion

- The sunset clause is a tool to improve efficiency, not to curtail rights

- UNDP stresses that any such clause must be preceded by capacity building, legal safeguards, and inclusive dialogue with forest-dwelling communities.

The UNDP report gives a balanced and practical roadmap to improve FRA implementation. While a "sunset clause" could speed up processes, it must not harm genuine claimants. The real success lies in inclusive governance, strong institutions, and empowering forest communities, especially women, to take charge of their land and resources.

**EXPECTED QUESTION FOR UPSC CSE**

**Prelims MCQ**

Q. What is the main purpose of the "sunset clause" suggested in the UNDP report on the Forest Rights Act (FRA), 2006?

(a) To cancel all previously granted forest rights  
 (b) To fix a deadline for recognition and vesting of forest rights  
 (c) To allow only tribal men to claim forest rights  
 (d) To privatize forest lands for commercial use

**Answer: (b)**

### SALTWATER CROCODILES

**Why in News:** According to a population survey conducted by the West Bengal State's Forest Department, the estimated population of saltwater crocodiles, has risen in the **Sundarban Biosphere Reserve (SBR)** compared to last year.

#### Key Details

- The report by Forest Department is titled as '**Population Assessment and Habitat Ecology Study of Saltwater Crocodiles in Sundarbans 2025**'.
- The government of West Bengal has undertaken substantial initiatives to protect saltwater crocodiles, establishing a conservation and breeding center known as the **Bhagabatpur Crocodile Project**.

**Sundarban Biosphere Reserve**

- **Location**
  - ✓ Situated in the southern part of West Bengal, India
  - ✓ Lies at the delta of the Ganga, Brahmaputra, and Meghna rivers
  - ✓ Spans South 24 Parganas district
  - ✓ Part of the larger Sundarbans region, which extends into Bangladesh
- **Geographical Features**
  - ✓ World's largest mangrove forest
  - ✓ Includes a network of rivers, creeks, estuaries, and tidal mudflats
  - ✓ Covers an area of around 9,630 sq. km in India (SBR specifically ~4,263 sq. km core area)
- **Protected status**
  - ✓ Biosphere Reserve (1989) – Under UNESCO's Man and Biosphere (MAB) Programme
  - ✓ UNESCO world Heritage Site (1987) – For the Sundarbans National Park (Core Area)

- ✓ Ramsar Wetland Site (2019) – Recognized as a wetland of international importance

- **Threats**

- ✓ Climate change: rising sea levels, salinity intrusion, frequent cyclones
- ✓ Erosion: submerging of inhabited islands (eg. Ghoramara)
- ✓ Human-Wildlife Conflict: especially tiger attacks
- ✓ Overfishing and illegal resource extraction
- ✓ Habitat degradation & pollution
- ✓ Shrimp farming: causes mangrove loss
- ✓ Encroachment & urban pressure

- **Conservation Measures**

- ✓ Sundarbans Tiger Reserve (part of Project Tiger since 1973)
- ✓ Bhagabatpur Crocodile Project – breeding and releasing saltwater crocodiles
- ✓ Mangrove afforestation projects
- ✓ Eco-development programs for local livelihoods
- ✓ Early warning systems for cyclones
- ✓ Promotion of sustainable fishing and honey collection

### Bhagabatpur Crocodile Project

- **Location**

- ✓ Located at Bhagabatpur in the Sundarbans region, South 24 Parganas district, West Bengal, India
- ✓ Lies within the Sundarbans Biosphere Reserve
- ✓ Situated on the banks of the Saptamukhi river

- **Establishment**

- ✓ Started in 1976 by the West Bengal Forest Department
- ✓ Set up as a conservation and breeding centre for saltwater crocodiles (*Crocodylus porosus*)

- **Main Objectives**

- ✓ Breed and conserve the endangered saltwater crocodile
- ✓ Rehabilitate and release crocodiles into natural habitats like the Sundarbans
- ✓ Educate and create awareness about crocodile conservation
- ✓ Support research and wildlife tourism

### Saltwater crocodile (*Crocodylus porosus*)

- It is the largest of all crocodilians and the **largest reptile** in the world.
- They are “**hypercarnivorous apex predators**” that keep flowing water ecosystems clean by feeding on the carcasses and wild remains in the water.
- In India, saltwater crocodiles are distributed across the **swamplands, rivers, mangroves of Odisha and West Bengal** and the coastal areas of the **Andaman and Nicobar Islands**.

### Survey outcomes & habitat insights

- The survey covered around 1,168 kilometres of creeks, which is about 64% of the total important creek length in the Sundarbans forests.

- The encounter rate was about one crocodile per 5.5 km of creek in 2025, an improvement over previous year.
- **Threats remain:** increasing salinity, loss of nesting sites, and shifting coastline patterns due to climate change may pose challenges to long-term survival.

### Limitations & Cautions

- **Coverage Gaps:** Not all creeks could be surveyed. Some parts of the Sundarbans remain unassessed or less accessible.
- **Estimates, Not Exact Counts:** The numbers are population estimates, not exact counts. Survey teams use both direct sightings and indirect signs (tracks, nests etc.)
- **Habitat Pressure Ongoing:** While numbers have risen, habitat loss, rising sea levels, and human encroachment still threaten crocodile populations.
- **Double Counting & Terrain Challenges:** Since surveys run over several days, the same crocodile might be counted more than once if movement is not accounted for. Also, weather and visibility can affect sightings.

### Suggestions & Way Forward

- **Continued Monitoring & Regular Surveys:** Frequent and systematic surveys help track population trends and detect problems early.
- **Habitat Protection & Restoration:** Preserve and restore mangrove forests, protect nesting sites, control salinity intrusion, and maintain freshwater flow.
- **Community Involvement:** Involve local communities in protection, monitoring, and awareness to reduce conflicts and poaching.
- **Legal & Policy Support:** Strengthen laws and enforcement against habitat destruction, illegal fishing, and land reclamation.
- **Research & Technology Use:** Use satellite imagery, drones, camera traps, and better data systems to improve accuracy of estimates.
- **Climate Change Adaptation Strategies:** Plan for rising sea level, salinity changes, and increased storm intensity to secure long-term habitats.

### Conclusion

The rise in saltwater crocodile numbers in the Sundarbans is a positive signal that conservation efforts are yielding results. Seeing more juveniles and hatchlings is very encouraging. But this success must be sustained — ongoing habitat protection, careful monitoring, community involvement, and addressing climate challenges are essential to ensure these majestic reptiles continue to thrive in the shifting landscapes of the Sundarbans.

### EXPECTED QUESTION FOR UPSC CSE

#### Prelims MCQs

- Q. According to a recent survey by the West Bengal Forest Department, what trend was observed in the population of saltwater crocodiles in the Sundarban Biosphere Reserve?
- The population has declined
  - The population remains unchanged

- (c) The population has increased
- (d) The species is extinct in the region

**Answer: (c)**

## NATIONAL RIVER CONSERVATION PLAN

**Why in News:** The union government has taken action to incorporate the Pampa River into the National River Conservation Plan (NRCP), a significant initiative that focuses on safeguarding the major rivers across the nation.

### Key Details

- The Union Ministry of Jal Shakti has asked the Kerala state government to submit a detailed report as part of this inclusion process.

### Reasons for inclusion

- River Pampa is significant both environmentally and religiously.
- It is closely tied to the Sabarimala shrine, and religious conventions such as Maramon and Cherukolpuzha are held along its banks.
- There are serious concerns:
  - ✓ Pollution from unmanaged waste disposal by local bodies.
  - ✓ Erosion/ destruction of riverbanks in many stretches, especially during the rainy season due to lack of retaining structures.

### What inclusion would bring

If Pampa River is brought under NRCP, the following are expected:

- Projects to prevent untreated wastewater discharge into the river.
- Removal of solid waste and setting up of water purification plants.
- Construction of river walls/ bank-protection measures.
- Technical assistance to state and local governments.

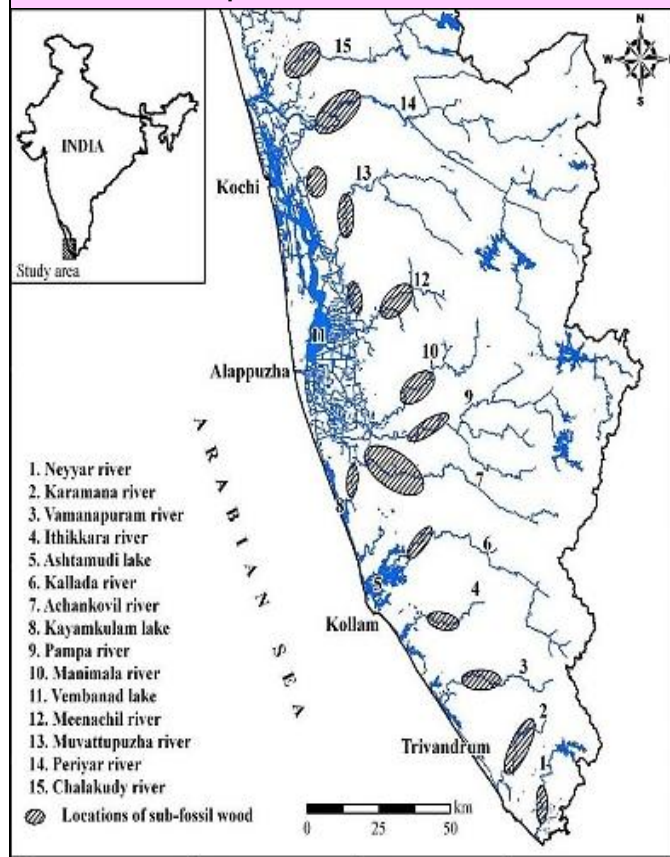
### Implications & Analysis

- **Environmental Benefits:** If the inclusion goes through, there is potential for significantly improved ecological health of the river: reduced pollution load, better bank stabilization, protection of aquatic life, and more sustainable river use.
- **Religious & Social Significance:** Given Pampa's association with major pilgrimages (e.g. to Sabarimala) and large religious events, cleaner and safer river conditions can have direct public health and heritage conservation benefits.
- **Governance & Local Bodies:** The requirement of a detailed report means the state government will need to gather data: pollution sources, river morphology, usage, etc. Local bodies (panchayats, municipalities) will need to be involved in both reporting and implementation.

### River Pampa

- **Third-longest River in Kerala**

- **Length-** 176km
- **Basin area:** 2235 sq.km.
- **Origin:** Pulachimalai hills in the Western Ghats, Peerumedu Plateau, Idukki district
- **Empties into:** Vemband Lake
- **Main tributaries:** Kakkad river, Azhutha river, Manimala River
- **Religious significance:** Sacred River for Sabarimala pilgrims (**Sabarimala Ayyappa Temple** - used for ritual bathing at Pampa Triveni)
- **Hosts events like:**
  - ✓ **Maramon conventio** (world's largest Christian gathering on a riverbed)
  - ✓ **Cherukolpuzha Hindu convention**



### Challenges to Overcome

- Managing waste disposal effectively in many small local governance units.
- Constructing riverbank protections in varied terrain, possibly with land ownership issues.
- Ensuring sustained funding and maintenance, not just one-off interventions.
- Balancing religious event pressures (crowds, pollution during large gatherings) with conservation measures.

### Way Forward

- Accelerate the inclusion in the National River Conservation Plan.
- Establish modern wastewater treatment systems.
- Set up zero-waste zones in pilgrimage and festival areas.
- Build eco-friendly retaining walls using gabion structures or vegetative techniques
- Revive the earlier proposal to create a Pampa River Basin Authority.

- Install real-time water quality monitoring sensors.
- Enforce strict penalties for pollution under the water act (1974)

#### EXPECTED QUESTION FOR UPSC CSE

##### Descriptive Question

Q. Discuss the objectives and implementation challenges of the National River Conservation Plan (NRCP). In this context, examine the significance of including the Pampa River under the NRCP, highlighting the environmental and socio-cultural issues associated with its conservation. [250 Words] [15 Marks]

#### NATIONAL AUTHORITY FOR CARBON TRADING

**Why in News:** India has set up a 21-member National Designated Authority, led by the Union environment secretary, to carry out the rules concerning **carbon trading** and other **market-based strategies**, aiming to meet its **climate goals** as outlined in the **Paris Agreement on climate change**.

##### Key highlights

- The new **National Designated Authority (NDA)** for carbon markets, notified in August 2025, replaced an earlier version of the same body that was first constituted in May 2022.
- **Among its 19 core functions:**
  - ✓ Recommend to the central government what activities/projects may qualify for emission reduction units (i.e. eligible for carbon trading)
  - ✓ Maintain a registry of approved projects and their emission reductions (via an “Indian Carbon Market” administrator)
  - ✓ Evaluate, approve, and authorize projects under Article 6 mechanisms (which cover both market and non-market approaches) of the Paris Agreement.
- The NDA includes representatives from multiple ministries: external affairs, finance, power, science & technology, steel, civil aviation, petroleum & natural gas, agriculture, and renewable energy.
- India joins a number of countries (around 113) that have already notified similar national authorities to the UNFCCC.

##### Challenges & Risks

- **Inter-ministerial Coordination & Conflict:** Because sectors like energy, fossil fuels, agriculture, and industry are deeply affected by carbon markets, aligning them under a unified authority can be politically and administratively challenging.
- **Capacity & Technical Expertise:** India must ensure this body has sufficient technical, legal, and monitoring capability. Projects must be regularly audited, verified, and certified to maintain integrity.
- **Avoiding Loopholes / Gaming:** Carbon markets are vulnerable to loopholes, manipulation, weak baselines, or over-crediting. Strong rules and enforcement are essential.

- **Balancing Development & Emissions:** India’s growth needs (energy, industrialization, infrastructure) may come under pressure if stringent rules are imposed without subsidies/transition support.
- **Global Carbon Market Volatility:** Revenue, prices, demand in carbon markets are subject to global policy changes, market sentiment, and supply–demand dynamics.
- **Equity & Distribution:** Ensuring that benefits (credits, revenue) are fairly distributed—especially for poorer states, small projects, or vulnerable communities—will be delicate.

##### Potential benefits

- **Stronger Governance & Accountability:** By having a dedicated committee, with cross-ministerial representation, India is better placed to coordinate carbon market policies, reconcile sectoral interests, and hold projects accountable.
- **Clarity on Eligible Projects & Standards:** The NDA can define clear criteria/standards for which projects qualify for emission reduction units, reducing ambiguity and improving credibility.
- **Robust Registry & Monitoring:** Maintaining a registry of approved projects and their emissions reductions is critical for transparency, avoiding double counting, and building trust in carbon markets.
- **International Credibility:** Having a formal national authority shows India is serious about implementing Article 6 mechanisms. This may help in bilateral cooperation, attract investments, and improve its standing in climate diplomacy.
- **Facilitating Carbon Trading / Finance Flows:** With a regulator in place, India can better tap into global carbon finance (e.g. emission reduction credits, trading) under Paris rules.

#### National Designated Authority/ National Authority for Carbon Trading

- Under the Paris Agreement’s Article 6, countries are allowed to engage in cooperative approaches and trading of emissions reductions/mitigation outcomes across borders. To operationalize that, each country must designate a national authority to oversee and approve such mechanisms.
- India has recently (August 2025) constituted its NDA — a 21-member body chaired by the Environment Secretary.

##### Composition

- Central ministries (Environment, External Affairs, Renewable Energy, Steel, etc.)
- NITI Aayog (as a planning/policy think tank)
- Other relevant departments/ministries dealing with energy, climate, science & technology, etc.
- The chair is the Environment Secretary (Ministry of Environment, Forest and Climate Change, MoEFCC).

### Mandate/ Functions

- **Recommend Eligible Activities / Projects:** The NDA will propose which kinds of projects / activities may qualify for issuance of emission reduction units (ERUs) or credits under Article 6 (both under cooperative approaches / trading and crediting mechanisms).
- **Evaluate / Approve / Authorise Projects:** Projects that submit proposals will be assessed, verified, and (if they meet criteria) authorised by the NDA.
- **Registry & Tracking:** Maintain a registry of approved projects, monitor progress, record emission reductions or units, etc. This helps prevent problems like double counting.
- **Authorise Use of ERUs / Credits for India's NDCs:** The NDA will allocate and authorise credits so they can be counted toward India's Nationally Determined Contributions.
- **Update & Revise Scope / Criteria Over Time:** As climate priorities evolve, the NDA must periodically update which activities are eligible, modify accreditation rules, etc.
- **Direction / Policy Guidance on Article 6 Mechanisms:** The NDA may issue directions, guidance, and monitor compliance with Paris Agreement rules (including non-market mechanisms under Article 6.8).
- **Ensure Alignment with Sustainable Development:** Projects approved should align with national sustainable development goals, avoid adverse side effects (social, environmental), and take into account equity, local community impact etc.

### Paris Agreement on Climate Change

- The Paris Agreement on Climate Change, adopted in December 2015 under the United Nations Framework Convention on Climate Change (UNFCCC), sets out global climate goals aimed at limiting global warming and fostering low-carbon, climate-resilient development.

### Climate goals outlined in the Paris Agreement:

- **Limit Global Temperature Rise:** Well below 2°C, ideally 1.5°C
- **Reach Global Peaking of Emissions:** As soon as possible, then decline to net zero in second half of century
- **Nationally Determined Contributions (NDCs):** Submit, update every 5 years, increase ambition
- **Enhance Adaptive Capacity and Resilience:** Strengthen adaptive capacity and resilience
- **Climate Finance:** \$100 billion/year (initial goal); new goal after 2025
- **Transparency and Accountability:** Robust system to track emissions and climate action
- **Global Stocktake (GST):** Every 5 years to assess global progress

- **Voluntary Cooperation (Article 6):** Voluntary international cooperation and carbon markets
- **Support for Loss and Damage:** Recognize and support vulnerable countries' loss from climate impacts

### Way Forward

India should ensure the NDA is transparent, technically strong, and well-coordinated. Aligning with global standards, boosting capacity, and supporting inclusive, sustainable projects will strengthen its role in carbon trading and climate action.

### Conclusion

India's NDA is a key step toward fulfilling Paris Agreement goals. With effective implementation, it can drive low-carbon growth, attract finance, and enhance India's global climate leadership.

### EXPECTED QUESTIONS FOR UPSC CSE

#### Prelims MCQs

- Q. What is the primary role of India's National Designated Authority (NDA) under the Paris Agreement?
- (a) Enforce environmental laws across all states
  - (b) Approve and oversee carbon market projects under Article 6
  - (c) Monitor air quality in major cities
  - (d) Manage disaster relief funds for climate-affected regions

**Answer: (b)**

### INDIA'S FIRST NATIONAL BIOFOUNDRY NETWORK

**Why in News:** Science and Technology Minister launched the country's first National Biofoundry Network, describing it as a step towards making biotechnology a driver of India's economy, environment and employment.

### Key Details

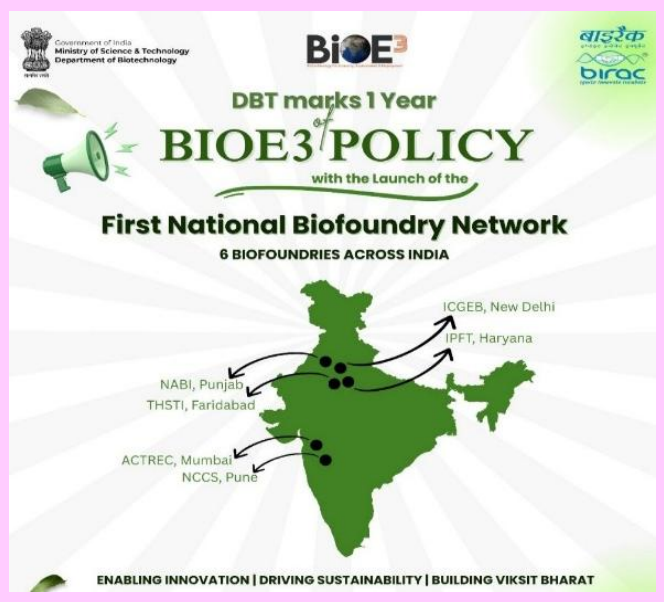
- The initiative is part of **the BioE3 Policy (Biotechnology for Environment, Economy and Employment)**, approved in 2024, which aims to strengthen biomanufacturing infrastructure in the country.
- The **National Biofoundry Network (NBN)** comprises six institutions to help scale up proof-of-concept developments, enhance indigenous biomanufacturing and create employment opportunities.
- The network is envisaged as a set of "bio-enabler facilities" or hubs (21 facilities across India, in some reports) that provide shared infrastructure (automation, AI, synthetic biology tools) to academia, startups, SMEs, and industry to help scale biotechnology innovations from proof-of-concept to pilot or pre-commercial levels.
- **Specific examples:**
  - ✓ A biofoundry in Ahmedabad will focus on probiotic production.
  - ✓ A facility at IIT Madras will support scale-up in pharmaceuticals and cosmetics.
  - ✓ In Bhubaneswar, via KIIT's technology incubator, one is planned for marine biotech.

- The first publicly funded biofoundry in India is being established at the **International Centre for Genetic Engineering and Biotechnology (ICGEB)**, New Delhi.
- Goals include reducing import dependence in biotech, fostering startups, generating employment, accelerating translation of lab innovations to market, and positioning India as a bioeconomy leader.
- The bioeconomy in India is said to have grown from US\$ 10 billion in 2014 to US\$ 165 billion in 2024, with a target of reaching US\$ 300 billion by 2030.

#### Six Institutions in the National Biofoundry Network

These six core institutions are officially mentioned as constituting the “National Biofoundry Network”:

- International Centre for Genetic Engineering and Biotechnology (ICGEB)
- Biotechnology Research Innovation Council – National Agri-Food Biotechnology Institute (BRIC-NABI)
- Translational Health Science and Technology Institute (THSTI)
- Institute of Pesticide Formulation Technology (IPFT)
- National Centre for Cell Science (NCCS)
- Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), Tata Memorial Centre



#### Implications

- **Bridging lab-to-market gap:** One of the biggest hurdles in biotech is moving from proof-of-concept to scalable production. Shared infrastructure (such as foundries) lowers the entry barrier for smaller entities by providing access to expensive instrumentation, automation, and process development expertise.
- **Innovation and startups boost:** With access to such advanced facilities, more biotech startups (especially in smaller cities) may emerge and grow, which can democratize innovation.
- **Import substitution & self-reliance:** By producing biologics, bio-inputs, specialty biomolecules domestically, India can reduce reliance on foreign imports in critical areas (e.g. enzymes, biopharma components, agricultural biotech inputs).
- **Bioeconomy growth & job creation:** The network aligns with the broader goal of expanding India's bioeconomy

and creating employment in high-tech, sustainable sectors.

- **Ecosystem synergy:** Integration of AI, synthetic biology, omics, and automation mean India is positioning itself to ride the convergence of biology + engineering + data science.

#### Challenges Ahead

- Ensuring equitable access across all regions (not just metro hubs)
- Sustained funding and operating costs
- Training skilled manpower to use and maintain advanced systems
- Translational & regulatory bottlenecks
- Effective industry-academia collaboration

#### BioE3 Policy

- **Full name:** “Biotechnology for Economy, Environment, and Employment (BioE3)” Policy, approved in August 2024 by the Union Cabinet.
- **Purpose:** To foster high-performance biomanufacturing, with support for R&D, innovation, commercialization in biotechnology; to institutionalize “Biofoundries”, “Biomanufacturing & Bio-AI hubs”, BioEnablers etc.

#### Bio-foundry / Bio-enabler Facilities / Hub Network

- Parallel to NBN, there is a launch of 21 bio-enabler facilities across India. These are shared infrastructure centres (automation, AI, synthetic biology etc.) to help with pilot and pre-commercial scale development.

#### The Youth Challenge (BioE3 Challenge)

- **Goal:** To encourage youth (school student's class 6-12, university students, researchers, faculty, startups) to design “safe-by-default” biological solutions in areas of health, agriculture, environment, industry.
- **Award and support:** Top 10 monthly winners will receive ₹1 lakh; ~100 selected awardees may get up to ₹25 lakh via BIRAC for proof-of-concept work, plus incubation & access to facilities.

#### Future goals

- Scale India's bioeconomy (grew from ~US\$ 10 billion in 2014 to ~US\$ 165.7 billion in 2024) to a target of US\$ 300 billion by 2030.
- Reduce import dependence: having domestic capability for biomanufacturing, bio-inputs, specialty biomolecules etc.
- Support startups, academia, small & medium enterprises by providing shared infrastructure, scaling capabilities, mentoring, funding.
- Promote green growth, sustainable / circular bioeconomy: climate resilient agriculture, carbon capture/utilization, smart proteins, marine biotech, etc.
- Build skilled workforce and capacity for high-performance biomanufacturing, synthetic biology etc.

## Way Forward

To maximize impact, the Biofoundry Network must focus on seamless coordination, sustained funding, skilled workforce development, and strong industry-academia linkages. A national governance framework with clear KPIs, inclusive access policies, and support for commercialization will ensure scalability and long-term success.

## Conclusion

India's National Biofoundry Network is a pivotal step toward becoming a global biomanufacturing hub. With strategic execution, it can drive innovation, self-reliance, and a robust bioeconomy aligned with national and global goals.

### EXPECTED QUESTION FOR UPSC CSE

#### Prelims MCQ

Q. What is the primary objective of India's first National Biofoundry Network launched in August 2025?

- (a) To develop a network of medical colleges focused on pandemic response
- (b) To support large-scale manufacturing of pharmaceuticals through foreign direct investment
- (c) To accelerate biomanufacturing and provide shared infrastructure for biotech startups and industries
- (d) To replace chemical fertilizers with organic alternatives in Indian agriculture

Answer: (c)

## ATLANTIC MERIDIONAL OVERTURNING CIRCULATION (AMOC)

**Why in News:** A study titled “Shutdown of northern Atlantic overturning after 2100 following deep mixing collapse in CMIP6 projections” argues that the tipping point of AMOC shutdown might be crossed within decades, and collapse could follow 50-100 years later.

The study also argues that the collapse of AMOC should no longer be treated as a low-probability event.

### About AMOC

- The Atlantic Meridional Overturning Circulation (AMOC) is a system of ocean currents in the Atlantic Ocean that transports warm, salty water from the tropics to the North Atlantic and returns cold, deep water back southward.
- It's sometimes referred to as a “conveyor belt” because of this large-scale, loop-like movement of water.

### Why Is AMOC Important?

- **Regulates Climate:** AMOC helps moderate temperatures in Europe and North America. It keeps Western Europe warmer than other regions at the same latitude.
- **Rainfall Patterns:** Affects the monsoon systems in Africa and South Asia.
- **Carbon Storage:** Helps absorb and store atmospheric CO<sub>2</sub> in deep ocean layers.
- **Marine Ecosystems:** Distributes nutrients essential for marine life.

## Possible consequences of AMOC collapse

- Cooling in the Northern Hemisphere, especially over the North Atlantic region.
- Changes in rainfall patterns, especially reduced precipitation over Europe.
- Impacts on sea ice extent (increase in some regions) and shifts in tropical rainfall belts.

## Reasons for weakening

- Increased freshwater input from melting Greenland ice sheets and Arctic regions (freshwater is less dense, interferes with sinking), altering salinity and density gradients that drive the circulation.

## Implications

- **AMOC and Climate Stability:** AMOC is part of the thermohaline circulation (often called the “global conveyor belt”) that helps redistribute heat globally. Alterations or collapse can cause abrupt shifts in climate patterns.
- **Tipping Point Dynamics:** The idea of a “tipping point” is that once certain thresholds are crossed, feedbacks push the system irreversibly toward a new state. The study says that threshold might be nearer than previously thought.
- **Regional Impacts vs Global Impacts:** While much of the focus is on the North Atlantic and Europe, changes in AMOC can ripple to affect monsoons, tropical rainfall, marine ecosystems, and possibly even weather extremes elsewhere.
- **Temporal Uncertainty:** Even if a tipping point is crossed soon, the full collapse isn't necessarily immediate. The lag between threshold crossing and actual breakdown gives some time, though likely limited, for adaptation or mitigation.
- **Mitigation Imperative:** Findings like this underscore urgency in reducing greenhouse gas emissions, slowing ice melt, and possibly exploring interventions (though interventions in ocean circulation are highly speculative and risky).

### EXPECTED QUESTION FOR UPSC CSE

#### Prelims MCQ

Q. What could be a major consequence of the collapse of the Atlantic Meridional Overturning Circulation (AMOC)?

- (a) Increased rainfall in Northern Europe
- (b) Enhanced Arctic Sea ice formation
- (c) Major cooling in Western Europe and disruption of monsoons
- (d) Strengthening of the Gulf Stream

Answer: (c)

# SCIENCE & TECHNOLOGY

## FENTANYL: THE POTENT THREAT TO GLOBAL HEALTH AND SECURITY

**Why in News:** Fentanyl, a powerful **synthetic opioid**, has emerged as the deadliest narcotic in the global opioid epidemic, particularly in the United States. Its high potency and ease of production pose significant challenges to global public health, supply chain management, and international narcotics control.

### Fentanyl: Nature, Use, and Threat Profile:

Feature	Detail	Significance (Health & Security)
<b>Potency</b>	Fentanyl is approximately <b>100 times more potent than morphine</b> and 50 times stronger than heroin. A microdose of only <b>2 milligrams</b> can be lethal.	Highlights the exceptional danger and the low quantity needed for illicit trafficking (small quantity, high impact).
<b>Origin and Medical Use</b>	Originally developed in the 1960s for clinical use. It is legally used for severe pain management (e.g., in cancer patients) through injections, lozenges, or <b>transdermal patches</b> .	Shows its <b>dual-use nature</b> and the necessity of strict pharmaceutical controls.
<b>Illicit Use</b>	It is often manufactured illegally and is increasingly used to <b>adulterate</b> (cut into) other street drugs like heroin or methamphetamine, significantly raising potency and profit margins.	Drives the majority of overdose deaths, fueling the transnational opioid crisis.
<b>Scale of US Crisis</b>	Fentanyl now accounts for more overdose deaths in the U.S. than heroin and prescription opioids combined, underscoring its role in the public health crisis.	Provides the context for international pressure on source/transit countries for precursor chemicals.

### India and the Regulation of Precursor Chemicals:

India's recent inclusion in the U.S. "**Major's List**" highlights its pivotal, albeit challenging, role in the global fight against synthetic narcotics.

#### 1. The U.S. Major's List

The Major's List is an annual classification by the U.S. Department of State identifying countries of primary concern in the **production or transit of narcotics and their precursor chemicals**. India's inclusion is not an allegation of primary Fentanyl production, but rather a concern over the **diversion of precursor chemicals** vital for illicit Fentanyl synthesis.

#### 2. The Precursor Challenge

India is a major global producer of pharmaceutical and chemical products. The country has been listed due to:

- **Production and Diversion:** Alleged illicit production or diversion of precursor chemicals, such as **NPP and 4-ANPP**, which are essential building blocks for Fentanyl.
- **Geographical Proximity:** India's location near the **Golden Crescent** (Afghanistan, Iran, Pakistan) a major hub for drug trafficking makes it a significant transit and source region.
- **Core Challenges in Governance and Regulation:** The nature of Fentanyl creates unique obstacles for national and international security agencies:
- **Synthetic Nature vs. Traditional Narcotics:** Unlike plant-derived drugs (e.g., heroin from opium poppy or cocaine from coca leaf), Fentanyl is entirely synthetic. This makes it challenging to track its source, as it is not confined to specific agricultural regions.
- **The Dual-Use Dilemma:** The precursors (like NPP) have legitimate, necessary applications in the pharmaceutical, dye, and pesticide industries. A total ban would severely damage legitimate commerce and healthcare, requiring a nuanced regulatory framework.
- **Small Quantities, High Yield:** Miniscule amounts of precursor chemicals can produce vast quantities of lethal Fentanyl, complicating enforcement efforts at customs and borders.
- **Evasion Strategies:** Illicit trade is increasingly facilitated through online marketplaces, the dark web, and encrypted payments, hindering traditional law enforcement identification and tracking methods.
- **Globalized Supply Chains:** The production, processing, and trafficking of Fentanyl often involve multiple countries, requiring seamless **cross-jurisdictional intelligence sharing** to dismantle the supply chain effectively.

#### Way Forward:

Addressing the Fentanyl threat requires a comprehensive strategy encompassing supply-side interventions, public health measures, and enhanced international cooperation.

#### 1. Strengthening Domestic Regulatory Framework

- ✓ **Strict Licensing and Supervision:** Implement rigorous licensing and mandatory supervision for companies dealing with precursor chemicals, especially those involved in exports.

- ✓ **Digital Tracking Systems:** Incorporate **digital supply-chain tracking** mechanisms to ensure transparency, monitor the lifecycle of precursors, and prevent diversion into illicit channels.
- ✓ **Compliance Culture:** Promote a robust compliance culture within the legitimate pharmaceutical and chemical industry to ensure responsible business conduct without choking exports.

## 2. Enhanced International Cooperation

- ✓ **Intelligence Sharing:** Raise the level of cooperation with nations like the U.S., Mexico, and China, consistent with **UN Drug Conventions**, focusing on intelligence regarding precursor diversion and transnational trafficking organizations.
- ✓ **Capacity Building:** Provide the Narcotics Control Bureau (NCB) and other enforcement agencies with advanced technology and training to monitor large chemical export volumes and execute swift action against illicit exporters.

## 3. Public Health and Demand Reduction

- ✓ **Opioid Substitution Therapy (OST):** Scale up OST and establish deaddiction centers across the country.
- ✓ **Robust Awareness Campaigns:** Launch targeted public health campaigns to raise awareness about the risks associated with synthetic opioids and counterfeit pills.

## Conclusion

The Fentanyl crisis necessitates treating synthetic narcotics as a challenge to both **national security** and **public health**. For India, success lies in balancing the need to sustain a vibrant pharmaceutical export economy with the responsibility of ensuring the **non-proliferation** of precursor chemicals. An integrated strategy anchored in robust domestic regulation, technological vigilance, and deep multilateral cooperation is essential to mitigate this potent global threat.

### EXPECTED QUESTION FOR UPSC CSE

#### Prelims MCQ

Q. The term “Major’s List,” often seen in the news, is most accurately related to:

- A WHO classification of countries with the highest rates of opioid addiction.
- An annual U.S. Department of State classification naming major drug-producing or drug-transit nations.
- A UNODC effort to rank the world’s most powerful drug cartels by revenue.
- A list of nations under UN sanctions for non-compliance with the Convention on Psychotropic Substances.

**Answer: (b)**

## RARE QUADRUPLE STAR SYSTEM DISCOVERED IN THE MILKY WAY

**Why in News:** Astronomers have discovered **UPM J1040–3551 AabBab**, a **rare quadruple star system** comprising **two red dwarfs and two brown dwarfs** in the Milky Way — the **first confirmed system of its kind**.

### What is UPM J1040–3551 AabBab?

- **Nature of the System:** A **four-star system** located about **150 light years away** in the constellation **Hydra**, consisting of two binary pairs (Aab and Bab) gravitationally bound together.
- **Composition:**
  - ✓ **Two Red Dwarfs:** Small, long-lived, cool stars burning hydrogen slowly.
  - ✓ **Two T-type Brown Dwarfs:** Sub-stellar objects that never attained enough mass to sustain hydrogen fusion.
- **Rarity:** Brown dwarfs are usually solitary; fewer than **5%** have stellar companions, making this discovery exceptionally uncommon.

### Red Dwarfs

- Most abundant stars in the Milky Way (around 70% of all stars).
- **Surface temperature:** 2,500°C–4,000°C.
- Emit strong flares and UV radiation but have **lifespans of trillions of years**.
- **Example:** Proxima Centauri, the nearest star to Earth.

### Brown Dwarfs – The “Failed Stars”

- **Mass range:** 13–75 times that of Jupiter.
- Form like stars but **cannot sustain hydrogen fusion**.
- Share properties with **gas giants** like Jupiter.
- Very faint and cool, often detected via **infrared telescopes** or **Gaia mission data**.

### Scientific Significance

- Offers new insights into **how low-mass stars and sub-stellar objects form together**.
- Helps refine models of **stellar evolution, multiplicity, and planetary formation**.
- Demonstrates the growing role of **Gaia and ground-based telescopes** in detecting faint, low-mass systems.

## Conclusion

The discovery of **UPM J1040–3551 AabBab** enhances our understanding of **stellar diversity** and provides a new framework for studying **formation mechanisms** of stars, brown dwarfs, and planetary systems.

## EXPECTED QUESTION FOR UPSC CSE

### Prelims MCQ

Q. UPM J1040-3551 AabBab, recently seen in the news, refers to:

- (a) An exoplanet discovered orbiting a red giant star
- (b) A quadruple star system consisting of red dwarfs and brown dwarfs
- (c) A space telescope launched to observe deep space
- (d) A dwarf galaxy near the Milky Way

Answer: (b)

## SURYA AI: NASA AND IBM'S BREAKTHROUGH IN SOLAR FORECASTING

**Why in News:** Recently, NASA and IBM unveiled **Surya AI**, the world's first **foundation AI model for heliophysics**, trained on nine years of **Solar Dynamics Observatory (SDO) data**. It marks a breakthrough in **space weather forecasting**, enabling early warning of solar flares, coronal mass ejections, and other solar phenomena that can affect Earth and space missions.

### Why Surya AI Matters?

- The Sun, while essential for life, produces **solar flares and CMEs** that emit **charged particles** toward Earth.
- These events can disrupt **satellites, GPS, aviation, communication networks, and power grids**, and pose **radiation hazards** to astronauts.
- Surya AI allows scientists and policymakers to **forecast solar threats accurately**, improving preparedness and risk mitigation.

### Key Features of Surya AI:

- **Advanced AI Architecture:**
  - ✓ Combines **spectral block layers** and **long-short vision transformers** to capture both long-term and short-term solar patterns.
  - ✓ Learns **general-purpose solar representations** for tasks such as flare prediction, sunspot detection, and EUV spectrum forecasting.
- **Memory Innovation:**
  - ✓ Uses **spectral gating** to reduce computational noise and improve efficiency in processing massive solar image datasets.
- **Prediction and Accuracy:**
  - ✓ Forecasts **solar flares up to 2 hours in advance** and **solar wind speeds up to 4 days ahead**.
  - ✓ Achieved **up to 16% better accuracy** than existing models in flare classification.
  - ✓ Successfully recreated large solar events, e.g., **2015 St. Patrick's Day geomagnetic storm**.
- **Open-Source Collaboration:**
  - ✓ Accessible via **Hugging Face, GitHub, and IBM's TerraTorch**.
  - ✓ Includes **SuryaBench**, a benchmark dataset for research and development in solar physics.
  - ✓ Encourages **global scientific collaboration**, expanding innovation in space weather forecasting.

## Scientific and Practical Benefits

- **Protects Infrastructure:** Shields **power grids, GPS, aviation, internet, and satellites** from solar-induced disruptions.
- **Supports Space Missions:** Enhances astronaut safety and prepares spacecraft for **deep-space radiation hazards**.
- **Improves Readiness:** Allows governments and industries to **proactively mitigate risks** from solar activity.
- **Facilitates Research:** Provides a platform for **new insights in heliophysics** and advanced forecasting tools.

## Conclusion

Surya AI exemplifies the fusion of **artificial intelligence, heliophysics, and open science**. By offering **early warnings of solar activity**, it strengthens resilience of both **Earth-based infrastructure** and **space missions**. Its open-source nature ensures **global collaboration**, promoting innovation and safety in a technology-driven era.

## EXPECTED QUESTION FOR UPSC CSE

### Prelims MCQ

Q. Consider the following statements about Surya AI:

1. It was developed jointly by NASA and ESA.
2. It was trained on data from NASA's Solar Dynamics Observatory.
3. It can forecast solar flares up to two hours before they occur.

Which of the statements given above are correct?

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

Answer: (b)

## LUNAR MODULE LAUNCH VEHICLE (LMLV)

**Why in News:** The **Indian Space Research Organisation (ISRO)** has unveiled plans for its **most powerful rocket yet** the **Lunar Module Launch Vehicle (LMLV)** expected to be ready by **2035** to support **lunar and deep-space missions**, including India's **first crewed mission to the Moon by 2040**.

### About the LMLV

- The **LMLV** is being designed as a **super heavy-lift launch vehicle**, capable of carrying large payloads to Earth's orbit and beyond.
- It will serve as the **successor to the Next Generation Launch Vehicle (NGLV)** concept and is a key step toward India's long-term human and deep-space exploration goals.
- The vehicle will enable **future lunar missions, launch modules for the proposed Bharatiya Antariksh Station, and deep-space missions** beyond the Moon.

### Key Features

#### Design and Configuration:

- The rocket will stand **as tall as a 40-storey building**, making it the largest ever built by ISRO.

- It will have a **three-stage configuration**:
  - ✓ **First and second stages**: Liquid propellant engines.
  - ✓ **Third stage**: Cryogenic propulsion system for greater efficiency in higher orbits.
- The core stage and two large strap-on boosters will together power **27 engines** (three clusters of nine engines).

#### Payload Capacity:

- To Low Earth Orbit (LEO)**: Up to **80 tonnes**.
- To lunar orbit**: Approximately **27 tonnes** sufficient for **human-rated lunar missions** and heavy lunar infrastructure.

#### Propulsion and Structure:

- Each strap-on booster will be **taller than the current LVM-3 rocket**, ISRO's heaviest operational vehicle at present.
- The rocket will use a **combination of liquid and cryogenic propellants** to optimize thrust and efficiency.

#### Timeline

- Development completion**: Targeted for **2035**.
- Operational use**: Planned for **India's first human lunar mission by 2040**.

#### Strategic and Scientific Significance

- Human Spaceflight & Lunar Exploration**: Will enable India's planned **human lunar landing**, a goal set for 2040, advancing beyond Chandrayaan missions.
- Space Infrastructure**: Supports the creation of an **indigenous space station (Bharatiya Antariksh Station)**, projected for launch by 2035.
- Heavy Payload Transport**: Capable of delivering **large lunar infrastructure**, including cargo, rovers, and potential base modules.
- Deep-Space Exploration**: Paves the way for **interplanetary missions** in the 2040s, beyond lunar orbit.
- Strategic Autonomy**: Positions India among a select few nations (USA, China, Russia) with **super heavy-lift capability**, boosting self-reliance under the **Atmanirbhar Bharat** initiative.

#### Conclusion

The **Lunar Module Launch Vehicle (LMLV)** represents a transformative leap for India's space program shifting focus from satellite launches to **human and deep-space exploration**. Once operational, it will mark India's entry into the elite league of nations with **super heavy-lift capabilities**, enabling **sustained lunar presence, indigenous space infrastructure**, and future **interplanetary missions**. It aligns with India's long-term vision of becoming a **leading global space power by the mid-21st century**.

#### EXPECTED QUESTION FOR UPSC CSE

##### Prelims MCQ

Q. Consider the following statements about the Lunar Module Launch Vehicle (LMLV):

- It is a super heavy-lift launch vehicle that ISRO is currently developing for lunar and deep-space missions.
- The first two stages of the rocket use liquid propellants, and the third stage uses a cryogenic engine.
- The LMLV can carry around 27 tonnes of payload to lunar orbit.
- It is designed to replace the LVM-3 and will support India's future human and lunar missions.

Which of the statements given above are correct?

- 1 and 3 only
- 1, 3 and 4 only
- 2 and 3 only
- 1, 2 and 4 only

**Answer: (b)**

### ISRO'S INTEGRATED AIR DROP TEST (IADT-1)

**Why in News:** Recently, ISRO successfully conducted the first **Integrated Air Drop Test (IADT-01) — A Milestone in Gaganyaan's Safety Architecture** as part of its **Gaganyaan** human spaceflight programme, demonstrating end-to-end performance of the parachute-based deceleration and crew module recovery system.

#### Key Details

Parameter	Description
Test site	Satish Dhawan Space Centre (SDSC), Sriharikota
Payload	Simulated Crew Module (≈ 4.8 tonnes) with full parachute system
Drop height & platform	Released from ~3 km altitude via Indian Air Force Chinook heavy-lift helicopter
Parachute configuration	Four types: Apex Cover Separation (ACS), Drogue, Pilot, and Main parachutes
Performance objective	Decelerate the module to ~8 m/s at splashdown for safe sea landing
Recovery operation	Module was retrieved by INS Anvesha and transported to Chennai port

- The test included **full sequence parachute separation** and verified avionics communications, real-time telemetry, and data recording through a Solid-State Data Recorder (SSDR).

#### Gaganyaan Mission Roadmap & Role of IADT-1

- The human spaceflight mission has multiple technical validation phases. IADT-1 comes after **TV-D1** (Test Vehicle Abort, validating crew escape) and precedes **TV-D2**, **Gaganyaan-1 (uncrewed)**, and finally **crewed flight** (2027 target).

- IADT-1 is crucial because it demonstrates that the parachute and deceleration systems, as deployed in a realistic scenario, function correctly a non-negotiable requirement for human rating of the system.

### Significance for Technology, Policy & India's Space Ambitions

- **Validation of safety systems:** The success proves that the parachute assembly, sequencing, separations, and recovery can operate reliably in real conditions. This is central to astronaut safety.
- **Maturity of technology readiness:** Avionics triggering, telemetry, mechanical reliability, structural integrity and modeling validation are tested in one integrated experiment.
- **Inter-agency synergy:** The test involved ISRO, DRDO (notably ADRDE, Agra for parachute systems), Indian Air Force, Indian Navy, and Coast Guard, underscoring cross-domain collaboration.
- **Strategic confidence for future missions:** A successful IADT boosts confidence ahead of upcoming missions TV-D2, the uncrewed Gaganyaan-1, and the ultimate crewed mission. It forms a foundational step for India's ambitions in human spaceflight, space stations, and planetary missions.
- **Domestic capability & self-reliance:** The parachutes and associated systems are indigenously developed (e.g., by ADRDE) which enhances India's technological autonomy.

### Conclusion

The **IADT-1 test** is not just a technical experiment — it is a **proof point** that India is steadily advancing toward **human-rated space systems**. Each successful test, from crew escape to safe recovery, brings Gaganyaan closer to fruition. For UPSC aspirants, this is a textbook example of how space mission architectures require incremental validation, stakeholder synergy, risk mitigation, and policy support.

#### EXPECTED QUESTION FOR UPSC CSE

##### Prelims MCQ

Que. Consider the following statements regarding ISRO's IADT-1?

1. The test involved dropping the module from ~10 km using a C-130 aircraft.
2. It aimed at validating parachute deceleration systems for Gaganyaan's Crew Module.
3. Module was recovered by the Indian Navy after splashdown.

Which of the statements above given are correct?

- (a) 1 & 2 only
- (b) 2 & 3 only
- (c) 1 & 3 only
- (d) All 1, 2 & 3

**Answer: (b)**

## PRATUSH RADIOMETER: INDIA'S WINDOW TO THE COSMIC DAWN

**Why in News:** Scientists at the **Raman Research Institute (RRI), Bengaluru**, have developed a novel space-based instrument named **PRATUSH** Probing ReionizATIion of the Universe using Signal from Hydrogen. It is designed to study the **Cosmic Dawn**, the epoch when the first stars and galaxies formed, illuminating the Universe after millions of years of darkness.

### About the Cosmic Dawn

- The **Cosmic Dawn** marks the period when the **first luminous bodies** stars and galaxies were born, ending the **"Dark Ages"** of the Universe.
- During this phase, neutral hydrogen gas began to **reionise**, transforming the cosmos from a dark, neutral medium into an ionised, light-filled one.
- The **21-cm radio signal** emitted by neutral hydrogen atoms is the key to studying this era.
- However, detecting these faint signals from Earth is extremely difficult due to **radio interference, ionospheric distortions, and man-made noise**.

### About PRATUSH

- **Developed by:** Raman Research Institute (RRI), Bengaluru an autonomous institute under the **Department of Science and Technology (DST)**, Government of India.
- **Objective:** To capture and analyse the **21-centimetre radio frequency signal** emitted by hydrogen atoms during the **Cosmic Dawn**.
- **Proposed Orbit:**
  - ✓ To be placed on the **lunar far side**, the quietest radio region in the inner Solar System.
  - ✓ This region is naturally shielded from **Earth's radio frequency interference** and **ionospheric distortions**, making it ideal for precision cosmological studies.
- **Design and Components:**
  - ✓ Operates using a **Single-Board Computer (SBC)** a compact master controller smaller than a credit card.
  - ✓ The SBC coordinates the **antenna, analog receiver, and Field Programmable Gate Array (FPGA)** that processes incoming radio data.
  - ✓ The system ensures **high data accuracy** and **energy efficiency**, crucial for space-based instruments.
- **Laboratory Validation:**
  - ✓ Tests at RRI demonstrated **noise levels of only a few millikelvins (mK)**, proving its capability to detect **ultra-weak cosmic signals**.

### Scientific Significance

- **Pioneering Indian contribution** to space-based cosmology and radio astronomy.
- Supports India's ambition to join **global efforts** like NASA's DARE (Dark Ages Radio Explorer) and ESA's Lunar Pathfinder missions studying early Universe signals.

- Enables better understanding of:
  - ✓ **Formation of first stars and galaxies,**
  - ✓ **Transition of the Universe** from neutral to ionised state, and
  - ✓ **Distribution of hydrogen** during the first billion years after the Big Bang.
- Reinforces India's leadership in **low-frequency radio astronomy**, building upon RRI's earlier instruments like the **SARAS radiometer**.

### Conclusion

The development of **PRATUSH** marks a major step in India's participation in **global cosmological research**. By exploring the faint hydrogen signatures from the **Cosmic Dawn**, PRATUSH will help scientists unravel how the **first light transformed the Universe**, bridging the gap between astrophysics and space technology.

#### EXPECTED QUESTION FOR UPSC CSE

##### Prelims MCQ

Q. Consider the following statements about the PRATUSH Radiometer:

1. It is a lunar far-side radiometer mission developed by the Raman Research Institute (RRI).
2. It aims to detect faint 21-cm radio signals from hydrogen atoms formed during the Cosmic Dawn.
3. The system uses a Single-Board Computer (SBC) to coordinate data collection and processing.

Which of the statements given above is/are correct?

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

**Answer: (d)**

## JAROSITE DISCOVERY IN KUTCH: INDIA'S OWN MARS ANALOGUE

**Why in News:** Recently, scientists discovered that there is Jarosite, a rare yellow-brown mineral, in Matanomadh village, Kutch (Gujarat) - a place that ISRO has identified as a potential Mars analogue testbed for upcoming planetary missions like Mangalyaan-2.

### About Jarosite

- **Composition:** Jarosite is a sulphate mineral made up of potassium (K), iron (Fe), sulphur (S), and oxygen (O<sub>2</sub>).
- **Appearance:** It is from yellow-brown to ochre colour and has a crystalline texture.
- **Formation:** The product is made when volcanic ash or water-bearing rocks react with water, and the conditions are acidic and oxidising.
- **Indicator Value:** Shows the occurrence of water-rock interaction in the past, usually in the case of very saline and geochemical environments.

### Geological and Martian Link

- **Terrestrial Occurrence:** The jarosite is rare on Earth; Jarosite occurrences have been confirmed in the Varkala Cliff of Kerala and also found at several locations around the globe, such as Mexico, Spain, Japan, Canada, and the United States (Utah and California).
- **Martian Discovery:** The NASA Opportunity rover placed jarosite on Mars at Meridiani Planum (2004) - the first and most important evidence for the presence of water in the past on Mars.
- **Kutch Connection:** The mineral found in Matanomadh is about 55 million years old (Paleocene period).

### Significance of the Discovery

- **Planetary Analogue Research:** The composition and geological features of Matanomadh are indistinguishable from those of Mars in its early days, hence it can be considered a field test place for ISRO Mars rovers, drills, and remote sensing tools.
- **Astrobiological Importance:** It provides a training ground for life-searching missions as well as for studies of chemistry of the planetary surface.
- **Scientific and Strategic Edge:** Helps to grow the branch of planetary science and astrobiology in India. It also indicates the possibility of collaborating with the international Mars programs by India.

### Conclusion

The finding of jarosite in Kutch is a linkage between the Earth's geological past and Martian science. In addition to academic curiosity, it extends India's capacity for space exploration and offers a glimpse into Mars' watery history, a move closer to unraveling the existence of life beyond Earth.

#### EXPECTED QUESTION FOR UPSC CSE

##### Prelims MCQ

Q. With reference to the mineral "Jarosite", consider the following statements:

1. It is a sulphate mineral that contains iron, sulphur, and potassium.
2. Its formation requires the presence of liquid water under acidic and oxidising conditions.
3. It has recently been discovered in India and is also known to occur on Mars.

Which of the statements given above are correct?

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

**Answer: (d)**

## THE HIDDEN HUMAN COST OF ARTIFICIAL INTELLIGENCE

**Why in News:** A 2023 Oxford Internet Institute report revealed that nearly 70% of global data annotation work essential for training AI models like ChatGPT and self-driving cars is carried

out by low-paid workers in developing countries, mainly India, Kenya, the Philippines, and Pakistan, exposing the hidden human cost and ethical concerns behind Artificial Intelligence development.

### Human Involvement in AI Development

AI systems cannot comprehend the meaning of raw data on their own. They require data annotation labelling of images, audio, video, and text to create meaningful datasets.

**For example:**

- A **self-driving car** learns to differentiate between a pedestrian and a traffic light only after human annotators label millions of frames.
- **Large Language Models (LLMs)** like ChatGPT and Gemini are trained through:
  - ✓ **Self-supervised learning:** Model absorbs unstructured web data.
  - ✓ **Supervised fine-tuning:** Annotators refine incorrect or irrelevant responses.
  - ✓ **Reinforcement Learning from Human Feedback (RLHF):** Humans rate AI responses to guide improvement.

Each of these stages requires skilled human intervention proving that AI's "intelligence" is a collective human creation.

### The Global Data Annotation Industry

- The **global AI training data market** was valued at **\$2.3 billion in 2023** (Grand View Research) and is projected to reach **\$17 billion by 2030**. Yet, this growth rests on **underpaid and invisible workers** in developing nations.
- **Case Study: Kenya (2023):** A TIME magazine investigation revealed that data annotators working on OpenAI's ChatGPT content filtering earned **less than \$2/hour**, often reviewing disturbing content such as child abuse, torture, and violence. They worked through intermediaries like Sama (a U.S.-based data-labelling firm), under poor conditions.
- **India's Role:** India hosts one of the largest data-labelling workforces through companies such as iMerit, Playment, and Scale AI's offshore partners. These employ thousands of workers, many on gig contracts without social security.

### Invisible Human Work in "Automated" Systems

Even supposedly "automated" digital systems depend on human moderation and input:

- **Social media content moderation:** Meta (Facebook) and YouTube employ thousands of human moderators globally.
- **Voice recognition systems:** Companies like Amazon and Google rely on actors to record speech in multiple languages to train Alexa or Google Assistant.
- **AI image generation:** Human artists tag and describe millions of images to help models like DALL-E and Midjourney recognize human poses, actions, and emotions.

According to an **International Labour Organization (ILO, 2024)** study, content moderators experience high levels of

psychological distress due to constant exposure to violent material, yet lack mental health support and legal protections.

### Ethical and Labour Issues

- **Wage Inequality:** Workers in the Global South are paid **10-15 times less** than counterparts in the U.S. for the same AI microtasks.
- **Lack of Recognition:** Most annotators are unaware of the final product or company they contribute to.
- **Union Suppression:** Efforts to organize or demand better pay often lead to termination, as reported in The Guardian (2024).
- **Gig Fragmentation:** Work is routed through digital platforms, where "microtasks" are tracked, timed, and monitored through algorithms.

This phenomenon has led scholars like **Mary L. Gray and Siddharth Suri** (book: Ghost Work, 2019) to term these invisible workers as the "ghost workforce of AI."

### Indian Context and Policy Concerns

India, with its large English-speaking and tech-literate population, has become a **hub for AI data annotation and content moderation**. However, most such jobs fall outside formal labour laws and digital economy regulation.

#### Concerns:

- **Labour Rights:** The Code on Social Security, 2020 remains unclear on protections for gig workers engaged in AI-related work.
- **Mental Health:** No dedicated framework exists to monitor workplace trauma in online digital labour.
- **Transparency:** Subcontracting through layers of intermediary's obscures accountability.

#### Positive Steps:

- **NITI Aayog's "National Strategy for AI" (NSAI, 2023)** calls for "Responsible AI for All," focusing on human-centric, ethical, and inclusive AI development.
- **Digital India Act (proposed 2024)** aims to regulate platform accountability and online labour practices.
- **G20 Digital Economy Working Group (2023)** highlighted "fair AI supply chains" as a global policy priority.

### Need for Ethical and Transparent AI Supply Chains

To prevent human exploitation within AI ecosystems, several reforms are essential:

- **Fair Pay and Decent Work Standards:** Adopt ILO's Decent Work Agenda and ensure minimum wage parity.
- **Transparency Mandate:** Tech companies must disclose subcontracting networks and worker conditions.
- **Mental Health Protection:** Establish counselling and trauma support for content moderators.
- **Skill Certification:** Introduce AI data-labelling skill standards under Skill India Mission.
- **Ethical AI Certification:** Label AI systems trained under fair labour standards, similar to "Fair Trade" in commodities.
- **Global Cooperation:** Align with UNESCO's 2021 "Recommendation on the Ethics of Artificial Intelligence."

## Conclusion

AI is not autonomous intelligence; it is the product of countless human minds and hands. Recognizing and protecting this invisible workforce is vital to making technology humane, just, and sustainable. As the world transitions to an automated economy, **the ethics of labour** must become as central to AI governance as **the ethics of data**.

## SAMBHAV: INDIA'S INDIGENOUS SECURE MOBILE ECOSYSTEM

**Why in News:** **SAMBHAV (Secure Army Mobile Bharat Version)** is an indigenously developed secure mobile communication system by the Indian Army. Designed to enhance operational security and reduce dependence on foreign technologies, SAMBHAV played a pivotal role during Operation Sindoor, India's military response to terrorist attacks in Pahalgam.

### Key Features

- **Indigenous Development:** SAMBHAV is entirely developed by the Indian Army, aligning with the government's 'Atmanirbhar Bharat' initiative.
- **Secure Communication:** The system ensures encrypted, real-time communication, mitigating risks associated with commercial applications like WhatsApp.
- **M-Sigma Application:** SAMBHAV includes M-Sigma, a secure, native application that allows users to share encrypted texts, images, documents, and videos.
- **5G-Ready Handset:** The ecosystem is built on a 5G-ready handset with multi-layered encryption, ensuring robust security and future scalability.
- **Network-Agnostic:** It operates over standard cellular networks without the need for private or foreign infrastructure.
- **Scalability:** The Indian Army aims to deploy 35,000 SAMBHAV sets in two phases: 2,500 sets by 15 January 2024 and the remaining by 31 May 2024.

### Strategic Significance

- **Enhanced Security:** SAMBHAV protects military communications from eavesdropping and data tampering, ensuring the confidentiality of sensitive information.
- **Operational Efficiency:** It enables instant connectivity, facilitating effective command and control during field and tactical operations.
- **Technological Sovereignty:** By reducing reliance on foreign technologies, SAMBHAV fosters self-reliance and strengthens national security infrastructure.
- **Civil-Military Integration:** The system exemplifies India's civil-military fusion strategy, potentially extending secure communications to other critical sectors.

### Operational Impact

During Operation Sindoor, SAMBHAV facilitated real-time coordination among soldiers, commanders, scientists, and policymakers, embodying a 'whole-of-nation' approach to national security.

## EXPECTED QUESTION FOR UPSC CSE

### Prelims MCQ

Q. Consider the following statements about SAMBHAV (Secure Army Mobile Bharat Version):

1. It is a domestically developed 5G-based secure mobile ecosystem of the Indian Army.
2. It is functional only on private military networks and does not rely on public cellular infrastructure.
3. It has an indigenous application called M-Sigma for secure communication.

Which of the statement/s given above is/are correct?

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

**Answer: (b)**

## ISRO CONDUCTS AIR DROP TEST FOR GAGANYAAN

**Why in News:** Recently, the Indian Space Research Organisation (ISRO) successfully conducted its first **Integrated Air Drop Test (IADT-1)**. The test evaluated the **parachute-based deceleration and recovery system** of the **Gaganyaan Crew Module**, which is essential for ensuring astronaut safety during re-entry and landing phases of India's upcoming human spaceflight mission.

### Key Details

#### Objective of the Gaganyaan Mission

- **Goal:** To send a **three-member Indian crew** to **Low Earth Orbit (LEO)** (~400 km altitude) and safely return them to Earth.
- **Timeline:**
  - ✓ **First uncrewed mission (G-1):** Late 2025
  - ✓ **Crewed mission:** Targeted for **2027**
- The mission aims to demonstrate India's capability in **human spaceflight**, joining an elite group of nations (U.S., Russia, China).
- **Executing Agency:** ISRO, under the Department of Space, with support from **DRDO, IAF**, and other national agencies.

#### What is the Integrated Air Drop Test (IADT-1)?

- The IADT simulates the **final descent phase** of the spacecraft's journey back to Earth.
- Conducted using a **Chinook helicopter**, a **4.8-tonne dummy crew module** was dropped from a height of **3 km**.
- The test evaluated:
  - ✓ **Autonomous avionics system** for deceleration commands.
  - ✓ **Parachute deployment** sequence.
  - ✓ **Stability and orientation** during descent.
  - ✓ **Splashdown safety** and recovery readiness.
- Result: All **10 parachutes** deployed as planned, successfully reducing the module's **terminal velocity to ~8 m/s**, ensuring a safe landing speed.

### How Does the Parachute System Work?

The **parachute-based deceleration system** consists of **four types of parachutes**, each performing a specific function:

- **Apex Cover Separation Parachutes (2 units, 2.5 m each):** Remove the apex cover shielding the parachute bay.
- **Drogue Parachutes (2 units, 5.8 m each):** Stabilize the module and reduce initial velocity.
- **Pilot Parachutes (3 units, 3.4 m each):** Pull out the main parachutes.
- **Main Parachutes (3 units, 25 m each):** Provide the final deceleration for a safe splashdown.

This multilayered redundancy ensures crew safety even if one or more parachutes malfunction — a **critical safety feature** for human-rated missions.

### Why Is the Test Crucial?

- **Human Safety:** Parachute failure is one of the highest risks in crewed re-entry. IADT validates safe deceleration and recovery.
- **System Validation:** Confirms avionics, sensors, and parachute deployment logic under realistic conditions.
- **Mission Readiness:** A major milestone before uncrewed flight (G-1) and crewed missions.
- **Redundancy Proofing:** Ensures continued descent stability even with single-system failures.
- **Compliance with Human-Rating Standards:** Necessary for safety certification by ISRO and IAF for crew operations.

### Current Status of the Gaganyaan Programme

Component/Test	Status (as of 2025)
Crew Module & Service Module	Structures and propulsion systems manufactured and tested
Crew Escape System	Successfully demonstrated in <b>Test Vehicle Abort Mission (TV-D1)</b> , 2023

<b>Next Test Vehicle Mission (TV-D2)</b>	Scheduled for <b>Q3 2025</b> to test more complex abort scenarios
<b>Uncrewed Missions (G-1, G-2, G-3)</b>	Planned between <b>late 2025–2026</b>
<b>Crewed Mission (G-4)</b>	Planned for <b>2027</b>
<b>Facilities</b>	Crew training, control centre, and recovery infrastructure completed

### Value Addition

Recently, ISRO’s official press releases (Aug 25, 2025) confirm IADT-1 success and detailed parachute validation results.

- **Prelims Special:**
  - ✓ Gaganyaan = India’s first **human spaceflight mission**.
  - ✓ Vehicle used: **LVM3 (human-rated)**.
  - ✓ **Crew module:** Designed for re-entry, life support, and safe splashdown.
  - ✓ **Orbit:** Low Earth Orbit (~400 km).
- **UPSC Mains Special:**
  - ✓ Illustrates India’s advancements in **space technology, indigenous design, and crew safety engineering**.

Reflects **strategic autonomy** and **technological self-reliance (Atmanirbhar Bharat)** in high-end aerospace capability.



### Conclusion

The successful **Integrated Air Drop Test** marks a vital step toward India’s human spaceflight ambition. It strengthens ISRO’s confidence in the **crew safety and recovery mechanisms** — the cornerstone of any manned mission. With upcoming uncrewed missions and human-rating of systems nearing completion, **Gaganyaan 2027** symbolizes India’s entry into the **next frontier of space exploration** with indigenous precision and global credibility.

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# DEFENCE & SECURITY

## SUSTAINABLE POWER 1404

**Why in News:** In the aftermath of its 12-day confrontation with Israel, Iran staged its first large-scale military manoeuvres to underline its naval and strategic readiness.

### Key Details

- **Name of Exercise:** 1404 Sustainable Power
- **Regional Focus:** Northern Indian Ocean & the Gulf of Oman.
- **Vessels participated:** Among participating vessels are the support vessel IRIS Ganaveh and the naval frigate IRIS Sabalan.
- **Armament Systems:** Cruise missiles Nasir and Qadir were tested, and both were successful in striking targets in the maritime domain.
- Drones used for surveillance are used to collect intelligence and monitor areas.

### Strategic Background

- The exercises follow Israeli raids that destroyed parts of Iran's nuclear and air defence infrastructure, forcing Tehran to show off its ongoing military might.
- Iran's navy mostly avoided damage during the June fighting; thus, this post-war practice represents tenacity and deterrence.
- The conventional Iranian navy is based mainly in the Gulf of Oman, Indian Ocean, and Caspian Sea, whereas Islamic Revolutionary
- Guard Corps Navy (IRGCN) dominates the Persian Gulf and Strait of Hormuz, and comes into contact with Western naval forces most regularly.

### EXPECTED QUESTION FOR UPSC CSE

#### Prelims MCQ

Q. Which nation is linked to the naval exercise "Sustainable Power 1404"?

- (a) Kuwait
- (b) Iran
- (c) Israel
- (d) Iraq

Answer: (b)

## EXERCISE 'MAITREE'

**Why in News:** The 14th edition of Exercise Maitree took place recently at the Joint Training Node (JTN) in Umroi, Meghalaya. After five years, the exercise is happening in India for the first time.

### Key Details

- **Launch year:** 2006
- **Participants:** Royal Thai Army and the Indian Army.

- **Frequency:** Annually Thailand and India take turns hosting Maitree exercise.
- **Participation of Troops (2025):** From India, approximately 120 members of the Madras Regiment, whereas The Royal Thai Army comprising 53 members from the 14th Infantry Brigade's, 1st Infantry Battalion of Thailand.

### Key Features of Maitree exercise

- **Counterterrorism Activities:**
  - ✓ Joint exercises in **semi-urban settings Simulations** in compliance with the peacekeeping mandate of Chapter VII of the UN Charter
- **Operational and Tactical Training**
  - ✓ Collaborative strategizing, corporate-scale drills, and assaults
  - ✓ Specific methods for weapon management and fitness training.
  - ✓ Concludes with a validation drill carried out in near-combat circumstances for 48 hours.
- **Capacity Building**
  - ✓ Increases mutual trust and interoperability
  - ✓ Exposure to Disaster Relief and Humanitarian Assistance (HADR) procedures

### EXPECTED QUESTION FOR UPSC CSE

#### Prelims MCQ

Q. With reference to Exercise Maitree, consider the following statements:

1. It is a bilateral army drill between Thailand and India.
2. It was initially carried out in 2006.
3. Currently, Umroi, Meghalaya, is hosting the 14th edition (2025).

Which of the above statements is/are correct?

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

Answer: (d)

## MISSION SUDARSHAN CHAKRA

**Why in News:** Recently, Defence Research and Development Organisation (DRDO) conducted the maiden flight test of the Integrated Air Defence Weapon System (IADWS) under the newly initiated Mission Sudarshan Chakra.

### Key Details

- Prime Minister Modi on **79th Independence Day of India (2025)** declared the Mission Sudarshan Chakra which shall be an all-encompassing indigenous air defence system by 2035.
- In present times drones, cruise missiles, precision-guided weapons, and loitering munitions have become so

pervasive in recent years that the character of modern warfare has shifted profoundly.

- India has historically **relied on** either the foreign or joint systems such as the **Barak-8 (Indian–Israeli), Russian S-400 and Akash missile**.
- India has demonstrated its ability to shoot down hostile drones and missiles during **Operation Sindoor**, which required a powerful homegrown layered air defence system. The main objective would be to establish a layered security fence that addresses air, space and cyber threats.

#### Features of Sudarshan Chakra

- The IADWS (Integrated Air Defence Weapon System) includes **QRSAMs, VSHORADS and directed energy weapons (laser weapons)**.
- The mission developed a Central Command and Control Centre-based system that facilitates **reliable detection, tracking** and defeating an incoming threat.
- **Capabilities for Advanced Warfighting:**
  - ✓ Cyber-defence and cyber-offence tools.
  - ✓ Space resources for surveillance and early warning.
  - ✓ Both short-range and long-range counter-drone systems are available.
  - ✓ Retaliatory swarms of hostile drones.
  - ✓ Tri-service missile integration fosters cooperation between the Army, Navy, and Air Force.
- **Protection of Strategic and Civilian Infrastructure:** Defence bases, along with power plants, hospitals, transportation hubs and religious and cultural sites, will be covered.

#### Strategic Importance

- **Self-Reliance in Defence:** Supports India's goal for Atmanibharata in defence and reduces import dependency.
- **Technological Edge:** Aims at achieving an offensive edge against its rivals. The aboveground and subterranean structures are interconnected, and the camp can also operate in a hybrid fashion due to its cyber and space dimensions.
- **Doctrinal Effect:** This strategy enables India to address changing threats in the 21st century as part of a larger National Security Vision for 2035.

#### Conclusion

Mission Sudarshan Chakra bolsters the indigenous air defence of India, providing augmented coverage and self-dependence, and is well-prepared to counter modern aerial and cyber challenges.

#### EXPECTED QUESTION FOR UPSC CSE

##### Prelims MCQ

Q. Mission Sudarshan Chakra, recently in the news, is related to

- (a) Promotion of religious tourism
- (b) An indigenous multi-layered air defence system

- (c) India's nuclear-powered submarine initiative
- (d) A national cyber security project

**Answer: (b)**

## CISF LAUNCHES FIRST ALL-WOMEN COMMANDO UNIT

**Why in News:** In a first-of-its-kind step to achieve gender equality, the CISF is raising its first all-women commando wing in 2025 in India's paramilitary forces. The first batch is being trained at the Regional Training Centre, Barwaha (Madhya Pradesh).

#### Key Details

- ✓ **Start:** August 2025
- ✓ **Batch Size:** 30 women personnel (1st batch)
- ✓ **Duration:** 8 weeks
- **Curriculum Includes:** Endurance and combat fitness drills, weapons handling with live-fire practice, rappelling and survival skills including forest modules, counter-terrorist tactics, and a 48-hour simulation testing decision-making under stress.
- **Future outlook:** Next phase will be about training 100 more women for commando positions that will come mostly from Aviation Security Groups and high-sensitivity units.
- **Deployment:** After training these women commandos will be sent to Quick Reaction Teams (QRTs) for immediate response to terror threats and Special Task Forces (STFs) for multi-stage high-risk counter-terrorism operations.
- Their major postings are airports, metro networks, heritage sites, government offices, and critical private infrastructure.

#### Women's Representation in CISF

- **Current share:** ~8% (12,491 personnel)
- **Target:** 10% by 2026
- **Planned Recruitment:** 2,400 women personnel in the next year
- The creation of the commando wing demonstrates that women are being placed in frontline operational roles rather than only supporting or symbolic positions.

#### Importance of women in CISF

- **Historic Achievement:** CISF becomes the **first CAPF to raise a women-exclusive commando unit**, which is a significant step forward in operational inclusion.
- **Breaking Gender Stereotypes:** Women personnel now **take part in core counter-terrorism and rapid response duties**, which helps challenge some of the stereotypes of gender roles in armed security forces.
- **Improved Operational Agility:** The addition of women commandos - frontline troops in all my forces - makes them more agile, diverse and resilient, enabling them to

better confront complex urban, high-risk or high-reward scenarios.

- **Encouraging Inclusivity in National Security:** This step aligns with the gender-empowered agenda of India, which witnessed the induction of women officers into the Indian Air Force fighter stream.
- **Enhancing Public Confidence:** Apart from improving the trust of the public, commandos who are women can be a deterrent force at the critical infrastructure such as airports, metro networks and heritage sites as they are foci of interaction with the public in sensitive places.
- **Policy Relevance:** Shows a deep commitment by the CISF to bring about change in the structure and security modernization in the forces, in the other CAPFs like CRPF, BSF, ITBP and SSB.

#### Way Forward

- **Routine induction and training:** CISF is expected to go ahead with training women in batches, gradually building up numbers and skills to achieve 10% force representation by 2026.
- **Spread throughout CAPFs: Other CAPFs are expected to follow this example** and raise operational women's units, which will further diversify women's participation in combat and counter-terrorism duties.
- **Functional Integration:** Women commandos will be integrated more and more into Quick Reaction Teams (QRT), Special Task Forces (STF) and other top operational units and will not be limited to auxiliary or token roles.
- **Prospects for Leadership:** In the longer run, the effort may serve to open avenues for women to assume command and strategic roles in high-risk operations with the organization wheel, positively impacting the very nature of the organization.
- **Capacity Building and Modernisation:** Also training in cyber defence, sophisticated surveillance and counter-terrorism technologies to ensure women personnel could operate in a high-tech operational environment.
- **Gender Mainstreaming as Policy:** CISF's approach is a template for the gender mainstreaming for the nation wherein equality is promoted without compromising on operational efficiency, public safety and resilience amidst a changing security environment.
- **Public Perception and Soft Power:** The strong involvement of women in the frontline roles not only improves how gender equality is seen by the public, but also indicates that India is committed to a comprehensive approach to both national and international security, in the local and global areas.

#### Conclusion

In a way, the induction of an all-women commando wing in CISF is a gamechanger in India's security domain with a strong mix of gender inclusivity and operational know-how. It strengthens counter-terrorism efforts on the front line, adds

more agility and preparedness, and sets a standard for the integration of women in all armed and paramilitary forces.

#### EXPECTED QUESTION FOR UPSC CSE

##### Descriptive Question

Q. Critically analyze the importance of the first all-women commando unit of CISF in driving gender inclusivity in the country's internal security mechanism. Emphasize on the possible effects on effective functioning, public opinion and policy changes in the future in CAPFs. [250 Words] [15 Marks]

#### INDIA UNVEILS THREE NEW JOINT DOCTRINES FOR ARMED FORCES

**Why in News:** In a bold step towards its forces' 'jointness' and 'theatrisation', India issued three major joint doctrines at the Ran Samwad military conclave.

#### Key Details

- The papers were released by Chief of Defence Staff (CDS) General Anil Chauhan and Defence Minister Rajnath Singh.
- Together, the doctrines represent a milestone in the integration of Indian Army, Indian Navy and Indian Air Force into a single force arrayed across traditional and emerging domains.

#### The Doctrines in Focus

##### 1. Joint Doctrine for Special Forces (SF) Operations

- ✓ It coordinates the operation of the Para (SF), MARCOS and the Garud Commandos.
- ✓ The doctrine proposes **Joint Service Training Institutes (JSTIs)** as Centres of Excellence.
- ✓ **Joint training operations** will emphasize night and adverse weather operations, electronic warfare and terminal guidance of precision strikes.
- ✓ **Standardisation** will be developed in the form of SOPs, **interoperable communication** equipment and combined exercises.
- ✓ Doctrine focuses on the **use of emerging technology** such as drones, AI-enabled surveillance, and sophisticated target designation systems.

##### 2. Joint Doctrine for Airborne and Heliborne Operations

- ✓ Coordinates the employment of air and helicopter-borne forces.
- ✓ The doctrine incorporates technology that allows **precision and swift deployment**.
- ✓ It aims to build preparedness to fight across the full spectrum of conflict, from peacetime assistance (HADR) to high-intensity warfighting.
- ✓ Facilitates synergy between tactics, training, and procedures between services.

##### 3. Joint Doctrine for Multi-Domain Operations (MDO)

- ✓ First formal Indian attempt to define MDO (Land–Sea–Air–Space–Cyber–Cognitive).

- ✓ It aims for **resilient and agile force structures**, faster decision-making at command centres, and real-time battlefield adaptation.
- ✓ Recognises the **role of AI, cyber warfare, electronic warfare, and space-based assets** in future conflicts.
- ✓ **Aligns India with global military trends** (USA, NATO, and China already have MDO doctrines).

### Significance

- **Enhancing theatreisation:** This facilitation of a unified theatre command as proposed by the **Shekatkar Committee** will lead to **saving infrastructure duplication** and will boost joint planning and management of resources.
- **Improved Combat Power:** The single construct among various forces guarantees **speed, surprise, and precision** as it simultaneously enables surgical strikes, depth missions, and special reconnaissance, and a host of other options.
- **Technological Modernisation:** It fosters the **convergence of AI, robotics, cyber-defence, and ISR capabilities** with prospective mitigation measures against Information, Cyber, and Electronic Warfare (ICEW) and envisions a holistic approach to future warfare, which is as much about less kinetic as it is about hybrid operations.
- **Strategic Autonomy and Deterrence:** It not only enhances the credibility of India as a net security provider in the Indian Ocean Region (IOR) but also serves as a warning to challengers that India is capable of handling multi-front operations and immediate crisis responses.
- **Institutionalising Joint Culture:** It is homogenising the traditional siloed service culture and language through the standardisation of SOPs, joint training and communications, and development of a **common operational lexicon and shared situational awareness** across the services.

### Conclusion

As a result, India's armed forces are now taking a leap towards an integrated, IT-enabled, and futuristic military that can boost military efficiency, strategic deterrence and preparedness in every sphere of modern war.

## EXERCISE 'ACHOOK PRAHAR'

**Why in News:** Recently, the Indo-Tibetan Border Police (ITBP) and the Indian Army's Spear Corps conducted Exercise Achook Prahar in central Arunachal Pradesh.

### Key Details

- This four-day exercise centred on **assessing combat readiness and building the capacity** in austere high-altitude terrain.
- **Purpose:** To test the two forces' combat readiness and also to enhance their coordinated firepower in simulated battlefield conditions.
- **Result:** Great accuracy, quick reaction, and coordination among the ITBP and Army units were showcased in the outcome.

### Strategic Significance

- **Efficient Coordination:** Strengthened the synergy of the Army and Central Armed Police Forces (CAPFs) for border management.
- **Combat Readiness:** This lays the groundwork for a rapid and forceful reaction to a possible escalation on the border.
- **Strategic Assurance:** Portrays India's readiness in the sensitive Arunachal Pradesh area where eyeballs are regularly on China.
- **Skill Development:** Facilitates better communication, decision-making, and accuracy of fire under adversity.

### ITBP

- ✓ **Origin:** After the First Indo-China War of 1962, ITBP was formed to protect the Indo-China border.
- ✓ **Parent ministry:** Ministry of Home Affairs
- ✓ **Operations:** Mountain warfare, high-altitude survival, skiing operations.
- ✓ **Motto:** Shaurya-Dridhata Karma Nishtha (Valour, Determination, Devotion to Duty).

### EXPECTED QUESTION FOR UPSC CSE

#### Prelims MCQ

Q. Recently, the Exercise Achook Prahar was held or conducted by:

- Indian Army & BSF
- Indian Air Force & Assam Rifles
- Indian Army (Spear Corps) & ITBP
- Indian Navy & NSG

**Answer: (c)**

# SOCIAL ISSUES

## STUNTING AND MALNUTRITION IN INDIA: AN ONGOING CHALLENGE

**Why in News:** The seven years of POSHAN Abhiyaan has seen India make little progress in reducing stunting and it missed the target to reduce stunting among children.

### What is Stunting?

- Stunting is a term used to describe **low height-for-age in children** - a condition that **results primarily from chronic or long-term malnutrition**. It is not the same as wasting (low weight-for-height), which signifies acute malnutrition.
- **Reasons:** Stunting is the consequence of a prolonged insufficient diet, poor health and nutrition of women, recurring infections, bad sanitation and hostile socio-economic environments.

### Trends in India

- 2016: As per **NFHS-4**, 38.4 per cent of children in India under five years of age were stunted.
- 2018: **POSHAN Abhiyaan** was initiated with the objective to **lower stunting to 25 per cent by 2022** (Mission 25 by 2022).
- **2025: Stunting remains high at 37%**.
- The latest figures show only a marginal drop in stunting.

### Implications of Stunting

- **Health implications**
  - ✓ **Dampened brain development** and lower learning potential which inhibits knowledge-acquisition potential.
  - ✓ **Increased risk of infections** due to a weakened immune system.
  - ✓ Higher risk of adult obesity, type 2 diabetes, hypertension, and other diseases have been linked to metabolic disorders caused by undernutrition in infancy (3-5).
- **Educational Consequences**
  - ✓ Impaired children will have **small attention spans** and will be less equipped to start school, which means more probabilities of both repeating grade and leaving school.
- **Economic Costs**
  - ✓ If a person's physical and mental abilities are reduced, he/she will be **less productive and will earn less**.
  - ✓ A high healthcare cost burden arises from the development of chronic diseases because of undernutrition during childhood.
  - ✓ According to the **World Bank**, child undernutrition in India is the main cause of nearly **2-3 per cent loss of the country's annual Gross Domestic Product**.

### Social Aspects

- ✓ Worsens inequality because malnutrition is skewed **toward marginalised communities**.
- ✓ Contributes to **intergenerational poverty** by malnourished mothers giving birth to children who are also malnourished.
- ✓ An anaemic or **undernourished mother is more likely to have a low-birth-weight baby**, thus perpetuating the malnutrition cycle.

### Way Forward

- **Food Fortification:** Encourage the enrichment of basic commodities like rice, wheat flour, and edible oil in order to raise the intake of micronutrients through diet.
- **Health Infrastructure:** Develop the health infrastructure, ensure sufficient staffing in health institutions, and raise public spending on health to 2.5% of the GDP by 2025.
- **Digital monitoring tools:** Utilize applications such as Poshan Tracker to get real-time data on well-nourished children.
- **Promoting Dietary Diversity:** Promote traditional, local, nutrient-dense foods for daily consumption.
- **Community Empowerment:** participation in community exchanges and interaction with village women's groups, PRIs (Panchayati Raj Institutions) and SHGs in planning and monitoring of the nutrition programmes.

### Conclusion

Efforts to achieve SDG-2 (End hunger by 2030) will take immense political commitment, a great deal of monitoring and community-level involvement to ensure all children have an equal opportunity to grow and develop in good health.

#### EXPECTED QUESTION FOR UPSC CSE

##### Descriptive Question

Q. Critically analyse the multidimensional nature of the causes of stunting in India and suggest measures to tackle the same. [250 Words] [15 Marks]

## UGC DRAFT LEARNING OUTCOMES-BASED CURRICULUM FRAMEWORK (LOCF) 2025

**Why in News:** Recently, the University Grants Commission (UGC) came out with a draft of the Learning Outcomes-based Curriculum Framework (LOCF) for UG education in nine streams – anthropology, chemistry, commerce, economics, geography, home science, mathematics, physical education and political science.

### Key Details

- The framework intends to **transform higher education** by making the outcomes of learning relevant to skill development, employability, and comprehensive

development and, at the same time, bringing the **Indian Knowledge Systems (IKS) to the level of mainstream academics.**

- However, this move has sparked discussions with **critical voices** contending there will be political bias and eventual “saffronisation” of education.

### Key Features of the Draft Learning Outcomes-based Curriculum Framework

- **Learning Outcomes Orientation:** Moves away from rote learning towards specified outcomes: graduate attributes, programme outcomes and course outcomes and promotes critical thinking, ethical principles and problem-solving.
- **Integration of Indian Knowledge Systems (IKS):** Indigenous traditions, cultural insights, and ancient wisdom are woven into every discipline. **For ex.** Commerce - Insights from Kautilya’s Arthashastra, concepts of Ram Rajya in CSR, and Bhartiya philosophy in ethical business practices.
- **Redefinition of Discrimination:** The draft limits the definition of caste-based discrimination to SCs and STs only which affects the teaching of political science, social justice and constitutional values.
- **Curriculum Structure and Credit Distribution:** Prioritises the single-major route with little scope for multidisciplinary. Example: BSc Chemistry honours need 172 credits, out of which 96 are core.

### Significance

- **Decolonisation of Knowledge:** Not just the Indian mind but the whole Thought culture (e.g., Arthashastra, Bharatiya darshans) is recognised and integrated, hence education becoming both culture-rooted and socio-economically relevant in India.
- **Shift towards Outcome Based Learning:** Attributes the graduate qualities beyond memorization, critical thinking, problem solving and ethical reasoning, thus employability and life-long learning being the major contributions.
- **Global Competitiveness with Local Relevance:** It offers a curriculum that is not only relevant to the culture but also internationally comparable, thereby making young people globally competent but still being able to maintain their heritage.
- **skills and value:** This platform inspires the learning of analytical skills, moral ethics, and the practical experience, which is helpful for the interconnection of educational and social activities.

### Challenges

- **Risk of ideological distortion:** Elaboration of Indian Knowledge Systems may turn out to be selective in its ideological narrative, **undermining the secular, pluralistic fabric** of education.
- **No multi-disciplinary exposure:** Students following a single-major track with heavy credit requirements for that major are discouraged from exploring other disciplines

through elective courses, which is contrary to the vision of flexible and holistic education promoted under NEP 2020.

- **State vs. Central conflicts:** Recent changes might be perceived by the States as a violation of their powers to set the curriculum (education being on the Concurrent List) and thus, the beginning of Centre-State friction and non-uniform implementation of the policy would be essentially there.

### Way Forward

- **Balanced Integration:** Indian Knowledge Systems should be added as a perspective/lens and not pressed upon ideologically.
- **Academic autonomy:** Universities should have the freedom to modify the curriculum.
- **Encourage Multidisciplinary:** The real spirit of NEP 2020 is that you do have cross-disciplinary exposure beyond diet credit on narrow discipline specifics.
- **Transparent Consultation:** Accommodating constructive criticism from states, teachers and subject experts will ensure greater acceptability.

### Conclusion

The UGC’s draft LOCF is an attempt to transform the higher education system in India and make it output-orientated, contextualised to Indian ethos, and in tune with global competencies; yet the controversy brings to light the subtle line between cultural integration and ideological imposition.

#### EXPECTED QUESTION FOR UPSC CSE

##### Descriptive Question

Q. Critically analyse implications of recent UGC’s draft Learning Outcomes-based Curriculum Framework (LOCF) 2025 on academic freedom, federalism and quality of higher education. [250 Words] [15 Marks]

#### DOMESTIC SPHERE AND WOMEN'S EMPOWERMENT

**Why in News:** The issue of “domestic sphere” and women’s empowerment have once again come to the fore after the **Time Use Survey (TUS) 2024** brought out that Indian women work seven hours a day towards unpaid domestic work and men just 26 minutes. Against this glaring imbalance, the official narrative has been to project it as a sign of Indian “family values”, revealing the insidious gender gap even inside Indian homes.

#### Understanding the Domestic Sphere

- The domestic sphere is the private space of home, family, and carework and has long been considered a woman’s “natural” space.
- It was historically kept apart from the male-dominated public realm, which included politics, economics, and paid employment.
- However, this separation has only served to reinforce patriarchal norms, and despite the fact that women's

unpaid labour is essential to the economy and society, it remains unnoticed and underappreciated.

### Issues

- **Dowry deaths and domestic violence:** 35,000+ women were killed in dowry cases from 2017 to 2022; 30% of women experience partner violence, but only 14% complain: NFHS-5.
- **The sacramental nature of marriage:** Social pressure compels women to “adjust” to abusive marriages; opposition to criminalising marital rape is sustained in the name of “protecting Indian culture”.
- **Unpaid domestic work:** 93% of women perform household chores an average of 7 hours per day; 70% of men perform none.
- **Unpaid caregiving:** 41% of women dedicate 2+ hours to care work daily, and 21% of men do.
- **Hidden economic value:** According to SBI's 2023 projection, women's unpaid labour is worth ₹22.5 lakh crore, or 7% of India's GDP.
- **Lesser importance in public care work:** Anganwadi, ASHA and mid-day meal are not ‘workers’ but “volunteers”; they are paid honorariums, not salaries.

### TUS 2024 - Data Analysis

Category	Women	Men
Employment (15-59 Years)	25% (Avg. 5 hrs/day)	75% (Avg. 8 hrs/day)
Unpaid Domestic Services	93% (7 hrs/day)	30% (1.5 hrs/day)
Unpaid Caregiving	41% (2 hrs/day)	21% (1.2 hrs/day)

### Way Forward

- **Legislative and Institutional Measures:** Implement strict domestic violence laws and make marital rape a criminal offence as well as provide fast-track courts and victim-friendly measures for crimes of gender.
- **Recognition of Unpaid Work:** Recognise unpaid domestic work in national accounts of the economy and design wage compensation schemes for care workers.
- **Universal Public Services:** Create a system of publicly financed child, elder and health care that allows women to emerge from unpaid work.
- **Labour Rights for Scheme Workers:** Grant formal employment status, minimum wages and social security benefits to ASHA, Anganwadi and mid-day meal workers.
- **Cultural and Educational Transformation:** Gender-sensitive education, community mobilisation and gender-equitable sharing of household work.

### Conclusion

When the invisible labour of a woman is given visible respect and fair value, only then India’s assertion of “women-led development” will become authentic.

### EXPECTED QUESTION FOR UPSC CSE

#### Descriptive Question

Q. Analyze how the unpaid labour of the household and domestic violence echo larger socio-economic disparities. Consider how the domestic space might be transformed into a place of empowerment as opposed to subjugation. [250 Words] [15 Marks]

### SC CALLS FOR REGULATING SOCIAL MEDIA

**Why in News:** The Supreme Court of India recently asked the Union Government to bring in a complete set of rules to govern social media, observing that many influencers make free speech a commercial venture by crossing ethical and constitutional limits.

#### Key Observations of the Supreme Court

- **Commercialise Free Speech:** Influencers are capitalising on the monetised platform expression, blurring the lines between free, commercial and prohibited speech in public communication.
- **Digital Responsibility:** Social media users need to know that the right to freedom of expression carries with it the duty to further the cause of inclusiveness, dignity and social cohesion.

#### Directions of the Court

- **Draft rules shall be drawn up** by the Union Government in consultation with the National Broadcasters and the Digital Association, containing penalties and proportional consequences.
- Influencers who have been accused of posting derogatory content are to **issue apologies without conditions** to the detrimented parties through their platforms as a form of digital responsibility and ethical redress.
- It advocated for **digital ethics and sensitisation initiatives** for content creators, users, and platforms to promote understanding and responsible online conduct.

#### Need of regulating social media

- **Protection Vulnerable Communities:** Platforms might, under the scenario of non-intervention, continue to be breeding grounds for online abuse, trolling and hate speech against women, minorities and people with disabilities, potentially resulting in further marginalisation.
- **Tackling Disinformation and Hate Speech:** The spread of disinformation, hate speech, and extremist propaganda is undermining democratic discourse and internal security at high speed; hence, a pre-emptive regulation of these is needed.
- **Protecting mental health:** The algorithms that promote endless scrolling, fear of missing out (FOMO) and seeking validation online is creating anxiety, loneliness, and depression in youth and teens.
- **Online radicalisation:** Extremist ideology is propagated on social media to recruit and radicalise young people, therefore, there should be a strict regulation on content sharing.

- **Data privacy and consent:** Social media firms exploit their users by collecting and monetizing their data without informed consent, violating their right to informational privacy as protected under Article 21.
- **Preserving Integrity of The Electoral Process:** Disinformation campaigns targeted around ballots appear to be trying to shape the opinions of voters and undermine the legitimacy of democracy, and so are one more reason why we need to make sure that we have strong enforcement of rules.

#### Challenges for a social media regulator

- **Content volume and velocity:** Millions of posts are uploaded every minute, making real-time monitoring and moderation unfeasible for the authorities.
- **Anonymity and Impersonation:** Pseudonymous accounts encourage users to disseminate hate, misinformation and defamation, among others, which are not accountable to or traceable by.
- **Subjectivity of Harm:** Offensive or harmful content differs from culture to culture and country to country and even from belief to belief, making it impossible to apply uniformly.
- **Limit of Jurisdiction:** Platforms operate on a global scale, and many of them are beyond the reach of Indian law, so taking down harmful content that has its origin outside the country is a major challenge for Indian officials.
- **Under-resourced Institutions:** Limited resources for cyber security leads to slow redress for content-based complaints and crimes.
- **The emissions on creator economy:** Excessive regulation might dampen the expansion of India's digital economy and its burgeoning creator community and discourage innovation and culture diversity.

#### Way Forward

- **Holistic Digital India Act:** Introduce new legislation which is contemporary and rights-based in nature for AI, the protection of personal data, and content regulation in a transparent manner.
- **Transparency in Algorithms:** Make algorithms subject to regular audits, publish transparency reports, and adopt neutral.
- **Oversight Power:** Establish a quasi-judicial body to hear complaints and stack the deck in favor of dismantling of takedown and censorship.
- **Digital literacy campaigns:** Promote responsible use of social media and fact-checking within school curricula and mass media.
- **Multi-stakeholder implementation:** Foster cooperation between government, civil society, academia and the technology industry to protect a diverse digital ecosystem.

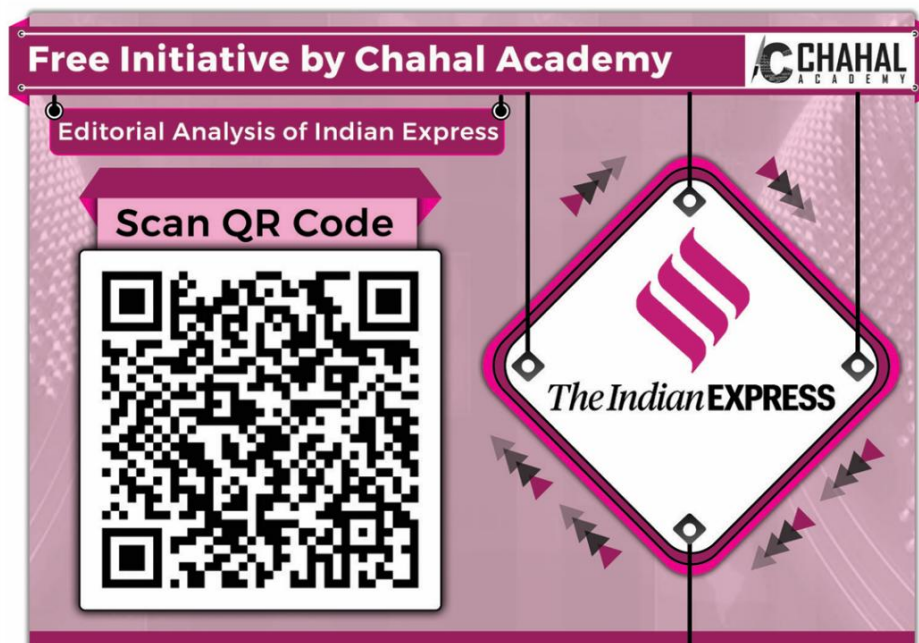
#### Conclusion

In a world where social media turns everyone into a loudspeaker, the answer is to regulate ethically, not to censor. What India must do, in other words, is make sure that digital freedom reinforces democracy rather than hollowing out its moral bedrock.

#### EXPECTED QUESTION FOR UPSC CSE

##### Descriptive Question

Q. What are the challenges for Indian democracy in regulating social media? Is it really "needed" to regulate social media in India to secure dignity, privacy and public order, or may excessive regulation kill creativity and dissent? [250 Words] [15 Marks]



# HISTORY & CULTURE

## ATHACHAMAYAM PROCESSION

**Why in News:** Onam, Kerala's iconic harvest festival, begins on August 26, 2025, with Atham Day marking the start of the 10-day celebrations.

### Key Details

- The Athachamayam procession is one of the most iconic and grand events marking the beginning of the Onam festival in Kerala.
- It typically takes place on Atham day, which falls in the month of Chingam in the Malayalam calendar (around August or September).

### Cultural Significance

- Athachamayam is believed to commemorate the annual visit of King Mahabali, the legendary Asura king, to his people.
- According to Onam mythology, King Mahabali returns from the underworld to visit his people during Onam, and the procession is a symbolic representation of his return.
- The word Athachamayam itself refers to the starting of the grand celebrations, and the procession serves as the official kickoff for the Onam festivities.

### Location

- The procession takes place in Tripunithura, a historic town near Kochi in Kerala, which was once the seat of the Kochi kingdom.
- Tripunithura is often referred to as the cultural capital of Kerala, and it hosts the most famous Athachamayam procession.

### Elements of the Procession

- **Traditional Attire:** Participants wear traditional Kerala costumes. The men often wear white dhotis, and the women wear kasavu sarees (a type of traditional white saree with golden borders).
- **Traditional arts:** Theyyam, Kummatti, Kolkali, Kathakali, Pulikali, Kalaripayattu, Margamkali, etc.
- **Floats:** The procession is famous for its colorful floats, representing various mythological stories, cultural motifs, and Kerala's rich traditions. These floats are often adorned with intricate artwork and are a sight to behold.
- **Elephants:** Majestic elephants play a central role in the procession. They are beautifully decorated with gold-colored ornaments, and some are even equipped with large parasols (mbra). The sight of these elephants is one of the most iconic features of Athachamayam.
- **Traditional Art Forms:** A wide array of Kerala's traditional art forms is performed during the procession. This includes Kathakali (classical dance-drama), Thiruvathirakali (a traditional women's dance), Pookkalam

(flower carpet making), and Kudiattam (traditional theatrical performance).

- **Chendamelam:** This is a rhythmic drum performance that adds to the excitement of the procession. It's a loud and energetic form of music with traditional Kerala percussion instruments, especially the Chenda drum.
- **Onasadya:** The highlight of Onam is the Onasadya, a lavish feast served on banana leaves.

### Importance of Onam Celebrations

- The Athachamayam procession symbolizes the reunion of King Mahabali with his people, bringing joy and prosperity.
- People from different parts of Kerala, and even tourists, flock to Tripunithura to witness this event, which marks the vibrant cultural heritage of Kerala.

### Modern Day Celebrations

- Though the procession still adheres to traditional customs, it has evolved over time to include contemporary performances and features. Today, you might see participation from schools, cultural organizations, and community groups. The event is widely broadcasted on TV and covered in the media.
- Athachamayam has become a significant event not only for Keralites but also for the larger Indian community, as it showcases the rich cultural diversity of Kerala.

### Various Other Dimensions

- **Constitutional & Legal Aspects**
  - ✓ **Article 29:** Protection of interests of minorities – can be extended to cultural rights.
  - ✓ **Article 51A(f):** Fundamental duty to value and preserve the rich heritage of our composite culture.
  - ✓ UNESCO's 2003 Convention on safeguarding intangible cultural heritage – India is a signatory.
- **Schemes & Institutions related**
  - ✓ Incredible India Campaign and Dekho Apna Desh: Athachamayam is featured in promotional material.
  - ✓ Local artists supported by Ministry of Culture's Scheme for Safeguarding Intangible Cultural Heritage.
- **Economic Dimension**
  - ✓ **Tourism Boost:** Attracts lakhs of tourists, both domestic and international. Helps local artisans, craftsmen, hotels, homestays, and transport services.
  - ✓ **Craft Revival:** Increased demand for traditional costumes, ornaments, musical instruments, and floats.
  - ✓ MSMEs benefit from orders linked to the procession.

## Conclusion

The Athachamayam procession is a spectacular display of Kerala's rich cultural heritage, traditions, and customs. It not only marks the start of Onam but also serves as a reminder of Kerala's deep-rooted history, mythology, and vibrant art forms. Whether you're a local or a visitor, experiencing the procession in person is an unforgettable part of the Onam celebrations.

### EXPECTED QUESTION FOR UPSC CSE

#### Prelims MCQs

Q. Which of the following is not traditionally associated with the Onam festival celebrated in Kerala?

- (a) Vallam Kali (snake boat races)
- (b) Pookalam (floral carpet)
- (c) Diya lighting ceremonies
- (d) Sadya (traditional feast)

Answer: (c)

## DARUMA DOLL

**Why in news:** During his visit to Japan, PM Modi was presented with a Daruma doll by Seishi Hirose, the Chief Priest of the Shorinzan Daruma-Ji temple.

### Key Details

- In a symbolic gesture, PM presented with the doll to represent his commitment to a successful relationship between India and Japan.
- It also highlights both the cultural exchange between India and Japan and the symbolic nature of the Daruma in inspiring perseverance and achieving goals.

### About Daruma Doll

- The Daruma doll is a traditional Japanese talisman that symbolizes perseverance, good luck, and the fulfillment of goals.
- It's usually made of papier-mâché and designed to resemble a Buddhist monk named Daruma, who founded the Zen school of Buddhism.

### Features of Daruma Doll

- **Perseverance:** It's weighted at the bottom, so it always returns to an upright position if tilted or knocked over. This gives the Daruma doll its iconic quality of "never giving up," symbolizing resilience and the idea of "falling down seven times, standing up eight."
- **Appearance:** It's typically round, with a face painted in a simple, expressive manner, and a red body. The doll is often sold with blank white eyes.
- **Eyes and Goal Setting:** Traditionally, when you first receive a Daruma doll, you make a wish or set a goal. You then color in one eye (usually the left) as a commitment to that goal. When the goal is achieved, you color in the other eye as a mark of success.
- **Symbol of Resilience:** The Daruma doll's return-to-center feature reflects the Buddhist belief in persistence and never giving up, no matter how many setbacks you encounter.

- **Color Significance:** The most common Daruma dolls are red, symbolizing good luck and prosperity. However, they can come in different colors with varied meanings, such as:

- ✓ **Gold:** Wealth and prosperity
- ✓ **White:** Purity and health
- ✓ **Black:** Protection from evil or misfortune
- ✓ **Green:** Success in studies and exams

### Daruma-Ji Temple

- The name "Daruma-ji" literally means "Temple of Daruma" (meaning Bodhidharma and meaning temple). This Buddhist temple located in the Takasaki city of Gunma Prefecture, Japan.
- This temple is deeply associated with the Daruma doll and is one of the key sites that celebrate the legacy of Bodhidharma, the founder of Zen Buddhism, who is the inspiration behind the Daruma doll.

### Bodhidharma: Founder of Zen Buddhism

- **Lived:** Approx. 5th–6th century CE (exact dates unknown)
- **Origin:**
  - ✓ Believed to be a South Indian prince or monk, possibly from the Pallava dynasty (modern-day Tamil Nadu or Andhra Pradesh)
  - ✓ Bodhidharma was likely a Brahmin or Kshatriya who renounced worldly life to become a Buddhist monk.
  - ✓ According to traditional accounts, he was well-versed in Mahayana Buddhism, particularly the Dhyana (meditation) school.
- **Role:**
  - ✓ 28th Patriarch of Indian Buddhism in the direct lineage from Gautama Buddha
  - ✓ 1st Patriarch of Zen (Chan) Buddhism in China.
- **Known For:** Transmitting Dhyana Buddhism (Sanskrit for "meditation") from India to China, which later became Chan in China and Zen in Japan.
- **Journey to China:**
  - ✓ Bodhidharma is said to have travelled to China by sea, arriving around 520 CE during the Liang Dynasty.
  - ✓ The Chinese emperor Wu of Liang, a devout Buddhist, met Bodhidharma and asked him about the merit of building temples and donating scriptures.
  - ✓ Bodhidharma told him these acts gained no true merit, emphasizing inner awakening over ritual.
  - ✓ This shocked the emperor, and Bodhidharma left the court.
- **Shaolin Monastery**
  - ✓ After leaving the imperial court, Bodhidharma travelled to Shaolin Monastery in Henan Province.
  - ✓ He is said to have meditated in a cave near the monastery for nine years, facing a wall in deep silence and discipline.
  - ✓ This story symbolizes unwavering concentration and introspective meditation — the core of Zen practice.



- **Founder of Zen (Chan) Buddhism**

- ✓ Bodhidharma's teachings focused on:
  - Direct transmission of wisdom outside of scriptures.
  - Personal experience of enlightenment through meditation.
  - "Not relying on words and letters" – emphasis on non-verbal transmission.
- ✓ He is the first patriarch of the Chan School in China (which later became Zen in Japan and Seon in Korea).

- **Texts attributed to him**

- ✓ Some works are traditionally (though not conclusively) attributed to Bodhidharma:
  - Two Entrances and Four Practices (Er Ru Si Xing): Describes the essence of Zen practice.
  - Bloodstream Sermon
  - The Wake-Up Sermon
  - Bodhidharma's Outline of Practice

- **Zen Buddhism**

- ✓ Zen Buddhism is a school of Mahayana Buddhism that emphasizes:
  - Direct experience of enlightenment
  - Meditation (zazen) over ritual and scripture
  - Self-discipline and simplicity
- ✓ It developed in China as Chan Buddhism, later spreading to Japan (where it became known as Zen), Korea (Seon), and Vietnam (Thien).

**Way Forward**

India and Japan should harness such cultural symbols to promote deeper people-to-people ties, educational exchanges, and joint heritage projects. Showcasing figures like Bodhidharma can strengthen civilizational links, while using the Daruma doll in cultural diplomacy can inspire collaborative efforts toward shared developmental and strategic goals.

**Conclusion**

The Daruma doll gifted to PM Modi symbolizes resilience, goal-setting, and the deep cultural ties between India and Japan. Rooted in Zen Buddhist tradition, it reflects shared values of perseverance and spiritual connection, reinforcing the enduring strength of bilateral relations through meaningful cultural diplomacy.

**EXPECTED QUESTIONS FOR UPSC CSE**

**Descriptive Question**

Q. "Cultural symbols like the Daruma doll reflect the deep interlinkages of religion, philosophy, and tradition in shaping societal values." Discuss the cultural significance of the Daruma doll in Japanese society and examine its historical connections with India. [250 words] [15 Marks]

**SIRARAKHONG HATHEI CHILLI FESTIVAL**

**Why in News:** The 14<sup>th</sup> Sirarakhong Hathei Chilli Festival was officially opened in Sirarakhong Village, located in the Ukhrul district of Manipur.

**Key Details**

- This 14-day event celebrates the region's unique GI-tagged Hathei chilli.
- Sirarakhong Hathei Chilli is lauded for its unique aroma, flavour and bright red colour.
- The festival blends cultural heritage, economic growth, and environmental awareness.

**About Sirarakhong Hathei Chilli**

Feature	Details
Name	Sirarakhong Hathei Chilli
Type	Indigenous variety of Chilli (Capsicum)
Color	Bright Red
Shape	Long and slender
Taste	Spicy but not excessively pungent
Aroma	Distinctive and strong
Drying Property	Dries easily under natural sunlight without losing color
Use	Culinary (spice, chutneys), traditional medicine, and local cuisine
Recognition	Received Geographical Indication (GI) Tag in 2021

**Cultural Significance**

- **Integral to Tangkhul Naga cuisine and identity:** The Sirarakhong Hathei Chilli is deeply embedded in the food habits of the Tangkhul Naga tribe in Manipur. For the Tangkhul people, cultivating and consuming this chilli is part of their cultural expression and tribal identity.
- **Celebrated annually through the Sirarakhong Hathei Chilli Festival:** The annual Hathei Chilli Festival in Sirarakhong village is a platform to showcase the chilli and the local culture. It promotes ethnic pride, community unity, and agro-based tourism.
- **Acts as a symbol of agro-cultural pride, especially for tribal farmers:** The successful cultivation and GI recognition of Hathei Chilli has given the local farmers a sense of dignity and ownership over their indigenous crop. It represents traditional knowledge systems, passed down generations that have adapted this crop to the local climate and soil.

**Economic importance**

- **Livelihood Source for Tribal Farmers:** Hundreds of families in Sirarakhong and surrounding areas depend on Hathei Chilli farming. Its cultivation is labour-intensive, involving local women and youth in planting, harvesting, and drying. The crop generates income through both raw and processed chilli sales.
- **Rising Market Demand Post-GI Tag:** The GI tag, granted in 2021, has helped differentiate the chilli from other varieties in the market. Demand has risen from local, regional, and online buyers looking for ethnic and organic products. This also enables premium pricing due to authenticity.
- **Encourages Organic and Traditional Farming:** The chilli is often grown using traditional and organic practices, without chemical fertilizers or pesticides. This aligns with

growing global demand for natural, organic produce. This reduces environmental harm and supports sustainable agriculture.

- **Potential for Value-Added Products:** Hathei chilli can be processed into powder, flakes, pickles, and sauces. Value-added products have a longer shelf life and higher market value, especially if properly packaged and marketed under the GI label. This also opens up entrepreneurial opportunities for local youth and women's groups.

### Challenges

- **Limited Market Access and Supply Chain Infrastructure**
  - ✓ Remote location and poor transport connectivity hinder the chilli's access to larger markets.
  - ✓ Lack of cold storage, processing units, branding, and e-commerce integration affects profitability.
- **Climate Vulnerability and Pest Attacks**
  - ✓ Changing rainfall patterns, droughts, and increased pest attacks threaten the crop.
  - ✓ Farmers have limited access to agro-advisory services or crop insurance.
- **Youth Migration from Farming Communities**
  - ✓ With fewer economic opportunities in agriculture, many young people migrate to cities.
  - ✓ This leads to labour shortages and a decline in traditional farming knowledge.

### Way Forward

- **Improve Value Addition & Branding:** Facilitate processing (dried, powdered, pickled), packaging, and branding under a common GI-based standard to fetch higher prices and wider market penetration (both domestic & export).
- **Scientific Support for Climate Resilience:** Given issues like unpredictable weather, pests, crop diseases, provide extension services, disease-resistant varieties, water management & soil conservation support.
- **Youth Engagement & Entrepreneurship:** Encourage local entrepreneurship around the spice value-chain (e.g. agritourism, spice products, culinary tourism) to retain youth in agriculture.
- **Strengthen Market Linkages:** Use digital platforms, cooperatives, government procurement schemes (e.g. school meals, spice boards) to guarantee demand and fair price.
- **Sustain Cultural Identity & Sustainability:** Ensure farming practices remain eco-friendly, avoid adulteration, maintain the chilli's unique traits (taste, aroma) so that GI status retains value.

### EXPECTED QUESTION FOR UPSC CSE

#### Prelims MCQ

Q. Consider the following statements regarding the Sirarakhong Hathei Chilli Festival:

1. The Hathei Chilli cultivated in Sirarakhong village has received a Geographical Indication (GI) tag.

2. The festival aims to promote tribal agricultural heritage, local economy, and environmental sustainability.
3. The event is organized annually by the Ministry of Agriculture and Farmers' Welfare, Government of India.

Which of the statements given above are correct?

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

**Answer: (a)**

## MANKI-MUNDA SYSTEM

**Why in News:** Members of the "Ho tribe", known as adivasis, organized a protest in the West Singhbhum district (Kolhan region) of Jharkhand against the Deputy Commissioner (DC) accusing him of disrupting their traditional self-governance system by dismissing village leaders, referred to as Mundas.

### Key Details

- The administration says that the protest was triggered by rumors, and that Mankis and Mundas remain part of the revenue system. But concerns among the community persist: fears that traditional autonomy is under threat.
- **Some of the issues raised:**
  - ✓ Complaints from Scheduled Castes (SCs) and Other Backward Classes (OBCs) in Ho-dominated villages that Mundas deny them certain livelihood opportunities (e.g. Gope community accusing Mundas of restricting them).
  - ✓ Situations where the Munda is absent (dead, no successor, etc.), causing problems for villagers to access rights and services.
- The DC (district administration) has issued a "nine-point directive" to bring more transparency: reminding Mundas of responsibilities defined under the "record of rights" (Hukuknama) from Wilkinson's rules.
- Another issue: many of the traditional leaders are not formally educated, and so may find it hard to deal with modern administrative, document-based governance. Some of the youth in the community want reforms — e.g. making the Munda/Manki roles not purely hereditary, ensuring competence, perhaps some elections or merit-based criteria.

### About the Manki-Munda System

- Among the Ho adivasi community in Jharkhand's Kolhan region, there has been a traditional system of self-governance, long predating British colonial rule.
- It's a decentralised customary governance mechanism:
  - ✓ **Munda = village head.** Each village has one Munda, typically a hereditary appointment. The Munda handles disputes, social and political issues, internal governance at the village level.
  - ✓ **Manki = head of a group of villages** (a "pit" or "pir", generally 8-15 villages). If disputes cannot be resolved by the Munda, they escalate to the Manki.

- ✓ Originally, no role in land revenue, taxes or land ownership enforcement: it was purely internal governance.

formal law, but allowed them to continue because no alternative governance system was in place.

### Historical Development

- When the British came, especially under the East India Company, the pressure of revenue collection etc. changed local dynamics. Ho lands were under pressure from zamindars and from the state's extraction.
- In an effort to manage this region (called the Kolhan Government Estate, KGE), the British co-opted the Mundi Manki system as intermediaries — recognizing the authority of Mankis and Mundas through what came to be known as Wilkinson's Rules (Captain Thomas Wilkinson drafted them). These rules attempted to codify the customary powers and responsibilities of these traditional leaders.
- Even after independence, many of those arrangements (customs, rules) survived. Courts for long have treated the Wilkinson rules somewhat like customary law.
- There was a case in 2000 (Mora Ho vs State of Bihar) in the Patna High Court which said these are old customs, not

### Wilkinson's Rules

- Around 1833-1837, Captain Thomas Wilkinson codified about 31 rules ("Wilkinson's Rules" / Hukuknama) to formalise the roles of Mundas and Mankis, recognised by British colonial administration.

### Significance

- The system represents a living bridge between customary/traditional authority and modern state administration. It has legal, political, social, and cultural weight.
- Any change to it has implications for tribal autonomy, local justice, and identity. People see it as not just administrative but symbolic.
- Also, in many tribal areas in India, the question of how much customary law / traditional authority should be preserved vs reformed is contentious — this is one such case.

### Structure & Roles

Level	Title/ Unit	Jurisdiction/ Area	Responsibilities/ Roles
Top Level (Cluster Level)	Manki	Heads a "Pir"/ "Pidh" (Cluster of approx. 8-15 villages)	<ul style="list-style-type: none"> <li>✓ Handles appeals or disputes not resolved by individual village Mundas</li> <li>✓ Mediates inter-village disputes</li> <li>✓ Represents interest of cluster in broader tribal / administrative for a</li> <li>✓ Interacts (historically) with colonial / administrative agencies under Wilkinson's Rules</li> <li>✓ In some cases, works with local administration in "Nyay-Panch" / "Nyay Panchayat" functions where recognised</li> </ul>
Base Level (Village Level)	Munda	Each village has one Munda, hereditary appointment	<ul style="list-style-type: none"> <li>✓ Resolve socio-political disputes within the village</li> <li>✓ Maintain social order, customary norms</li> <li>✓ Represent village in dealings with Manki / higher authority</li> <li>✓ Uphold traditions, customary law</li> <li>✓ Not originally responsible for land revenue, tax, or formal land ownership enforcement (purely internal governance)</li> </ul>
Supporting/ Auxiliary Roles	Dakuwa	Village level assistant/ informant to Munda: liaison role (information, communication)	<ul style="list-style-type: none"> <li>✓ Relays messages, notices, and information</li> <li>✓ Helps in local dispute resolution by assisting the Munda</li> <li>✓ Organises meetings/ informs villagers of decisions etc.</li> </ul>
	Religious roles	Village (or local) level	<ul style="list-style-type: none"> <li>✓ Pahaan (village priest) and Pujhar (assistant) — handles religious rituals, spiritual / customary ceremonies; helps maintain cultural / ritual norms.</li> </ul>
	Other assistants/ officials	Under Manki/ Under village head as needed	<ul style="list-style-type: none"> <li>✓ Possibly "assistant Manki", "assistant Munda" (for handling workload)</li> <li>✓ Sometimes Tahsildar role is mentioned (under colonial context) in some descriptions, more informal in recent times.</li> </ul>

### How it functions today & key features

Element	Details
Hereditary Leadership	Munda and Manki posts are hereditary, passed from father to son.
Dispute Resolution	Social, customary disputes; village-level issues handled by Munda; appeals or larger disputes by Manki.

Customary Law Vs. Formal Law	System relies on tradition/custom. Wilkinson's Rules provide codified customary rules but are not formal legislative law. Courts accept them due to lack of alternatives.
Vacancies & Administrative Interaction	Many Munda/Manki positions are vacant. State administration sometimes intervenes in filling vacancies, in confirming roles, etc. There are tensions about interference, perceived threat to autonomy.

### Suggestions/ Way forward

- **Introduce measured reforms:** e.g. maintain hereditary role but ensure leaders are trained in legal literacy, documentation, mediation, etc.
- **Clarify legal status:** Potentially codify modern equivalent of Wilkinson's Rules under state law while respecting customary norms.
- **Ensure transparency** in appointment/filling of Mundas/Mankis, involving Gram Sabhas.
- **Strengthen institutional support:** Provide administrative/legal backup, resources, to the traditional leaders so they can deal with modern frameworks (e.g. land records, documentation).
- **Balance tradition and rights:** Ensure that non-tribal or marginalized groups (SC/OBC in tribal villages) get fair access, avoid discrimination.
- **Public awareness:** informing both state authorities and tribal communities about the legal and customary framework so as to avoid misunderstandings.

- It consists of over 400 distinct characters, some of which appear in a variety of contexts, but without a clear understanding of their meanings.
- The absence of an alphabetic system or direct linguistic parallels makes it even more challenging to comprehend.
- Historians claimed that the underlying language represented by the Harappan script is Sanskrit, few other say that it is a form of proto-Dravidian, while few link it to Ho and Santali.
- Bahara Mukhopadhyay's research suggests it encodes information on ancient taxation and commerce.
- Karuna N Salame claims the script is primarily in the Gondi language, while another connects the script to Santali language.

### The challenge

To decipher a script, the following sub-problems have to be solved in order.

- Deciding if a set of symbols actually represent a writing system.
- Devising appropriate procedures to isolate or segment the stream of symbols into a sequence of single signs.
- Reducing the set of signs to the minimal set for the stream of symbols into a sequence of single signs.
- Reducing the set of signs to the minimal set for the writing system forming (its alphabet, syllabary, or inventory of signs) by identifying all allographs (the same sign written in a variant form, for example a printed 'A' & a cursive 'A').
- Assigning to each symbol their specified value, whether phonetic or otherwise.
- Trying to match these values to a specific language.
- In the case of the Indus script, many of these problems remain unsolved due to three main reasons:
  - ✓ No multilingual inscriptions
  - ✓ Language not known
  - ✓ Not much is known about civilization

### EXPECTED QUESTION FOR UPSC CSE

#### Prelims MCQ

Q. Which of the following statements about the Manki-Munda system (Ho tribe, Kolhan) is incorrect?

- The Munda is a hereditary village head in the Ho community responsible for resolving socio-political disputes at village level.
- The Manki heads a cluster of around 8-15 villages called a "pidh", handling appeals when Mundas cannot resolve issues.
- The system originally included duties related to collection of land revenue and taxes from outsiders.
- The "Wilkinson's Rules" (1833) formally codified the Manki-Munda system under British colonial administration.

**Answer: (c)**

## HARAPPAN SCRIPT

**Why in News:** Union Ministry of Culture has organized an international conference on the Harappan script, bringing experts to decode undeciphered Harappan Script, discovered since 1920s.

### Conference Highlights

- Organised by the Indira Gandhi National Centre for the Arts (IGNCA), an autonomous institution under the Ministry of Culture.

### Key Details

- The Harappan script, found on seals, pottery, and other artifacts from the Indus Valley Civilization (c.3300 and 1300 BCE), is a form of writing that has not yet been conclusively interpreted, despite numerous attempts.

### Implications of Undeciphered Script

- Lack of written records makes it difficult to interpret the political and administrative systems that sustained one of the world's earliest urban centres.
- Deciphering the script could shed light on the relationship between the Indus Valley Civilization and other ancient cultures, such as Mesopotamia and ancient Egypt.
- It could potentially clarify whether the IVS was linguistically and culturally distinct or whether it was part of a broader regional framework.

### Theories of Language and Origin

- **Dravidian Hypothesis**
  - ✓ **Theory:** The Harappan language is believed to be related to the Dravidian language family, which

includes modern languages like Tamil, Telugu, Kannada, and Malayalam.

✓ **Argument:** Some symbols in the script resemble elements of proto-Dravidian languages. The spread of Dravidian languages in southern India is proposed as a potential link to the Indus Valley Civilization.

✓ **Current Status:** Not definitively proven, though it remains a leading theory.

• **Proto-Indo-European Link**

✓ **Theory:** The Harappan script might be connected to the early forms of Indo-European languages, which later gave rise to Sanskrit and many European languages.

✓ **Argument:** Some researchers argue that Harappan symbols show similarities to early Indo-European phonetic patterns, suggesting a linguistic connection.

✓ **Current Status:** This theory is speculative, with no concrete evidence confirming the link.

• **Other Theories**

✓ **Non-Linguistic Symbolism:** Some scholars suggest the Harappan script may not be a full-fledged language but rather a set of symbolic signs or pictographs used for specific purposes like trade or rituals.

✓ **Pictorial/Ideographic System:** Another possibility is that the script represents a form of ideographic writing, where symbols convey ideas rather than phonetic sounds.

✓ **Current Status:** These theories challenge the traditional view of the Harappan script as a written language and are still debated.

**Conclusion**

The Harappan script is one of the most mysterious and intriguing elements of ancient history. Despite the existence of

many theories, the absence of conclusive discoveries leaves a significant portion of the Indus Valley Civilization's vibrant cultural legacy obscured. Nevertheless, with ongoing technological advancements, the aspiration to decipher this ancient code persists. At present, the enigma of the Harappan script continues, representing the challenges of comprehending ancient societies and the constraints of historical analysis.

**EXPECTED QUESTION FOR UPSC CSE**

**Prelims MCQ**

Q. What is not one of the major reasons why the Harappan (Indus) script remains undeciphered?

- (a) There are no known multilingual inscriptions linking the script with a known language.
- (b) The number of signs and their variants (allographs) is uncertain.
- (c) There is too much preserved material, making data overload an issue.
- (d) The average inscription is very short—often only a few characters.

**Answer: (c)**


**TENTATIVE SITES FROM INDIA IN UNESCO'S LIST**







**Why in News:** Seven natural heritage sites across India have been added to UNESCO's tentative list of World Heritage Sites, taking number on the list to 69.

**Key Details**

- With latest additions, India now has 49 cultural, 17 natural and three mixed heritage properties under the world body.
- The Archaeological Survey of India (ASI), the nodal agency for the World Heritage Convention in India, compiled and submitted the nominations.

**Newly added tentative sites**

Sites	Significance
<p><b>Natural Heritage of Erra Matti Dibbalu or Red Sand Dunes (Visakhapatnam, Andhra Pradesh)</b></p> 	<ul style="list-style-type: none"> <li>• The Red Sand Dunes of Erra Matti Dibbalu are striking geological formations found along the coast of Visakhapatnam.</li> <li>• These red-colored sand dunes are not only visually stunning but also have unique ecological value.</li> <li>• Formed through aeolian processes (wind-based erosion), these dunes are vital for coastal ecosystems and serve as an example of how nature's forces can shape landscapes over time.</li> </ul>
<p><b>Meghalayan Age Caves (Meghalaya)</b></p>	<ul style="list-style-type: none"> <li>• The Meghalayan Age Caves in Meghalaya provide invaluable insights into prehistoric times. The caves, formed over millions of years, have preserved prehistoric cave paintings and fossilized remains of ancient animals, offering a direct link to the Meghalayan Age (about 4200 to 4000 years ago).</li> </ul>

	<ul style="list-style-type: none"> <li>This period is crucial for understanding the evolution of human civilization in the Indian subcontinent.</li> </ul>
<p><b>Natural Heritage of Tirumala Hills (Tirupati, Andhra Pradesh)</b></p> 	<ul style="list-style-type: none"> <li>The Tirumala Hills, home to the famous Tirumala Venkateswara Temple, are known for their biodiversity and ecological richness.</li> <li>These hills, part of the Eastern Ghats, are not only religiously significant but also harbor various endemic species of plants and animals. The unique landscape of the hills is a hotspot for biodiversity, with rare flora and fauna.</li> </ul>
<p><b>Natural Heritage of Varkala (Kerala)</b></p> 	<ul style="list-style-type: none"> <li>Varkala in Kerala is known for its cliffs along the Arabian Sea coast, making it a stunning geological formation.</li> <li>The cliffs are a result of tectonic shifts and the subsequent erosion by coastal waters over millennia.</li> <li>The cliffs are also an important site for conservation, as they serve as a habitat for migratory birds and marine life.</li> </ul>
<p><b>Deccan Traps at Panchgani and Mahabaleshwar</b></p> 	<ul style="list-style-type: none"> <li>The Deccan Traps in Panchgani and Mahabaleshwar are one of the largest volcanic provinces in the world, formed from ancient lava flows.</li> <li>These vast basalt formations were created about 66 million years ago due to massive volcanic eruptions. The region is an extraordinary example of volcanic geology.</li> </ul>
<p><b>Geological Heritage of St' Mary's Island Cluster (Karnataka)</b></p> 	<ul style="list-style-type: none"> <li>St. Mary's Island, located off the coast of Udupi in Karnataka, is a geological wonder known for its unique columnar basalt formations.</li> <li>These formations are the result of volcanic activity millions of years ago and are considered one of the best examples of such formations in India.</li> </ul>
<p><b>Naga Hill Ophiolite, Nagaland</b></p> 	<ul style="list-style-type: none"> <li>The Naga Hill Ophiolite, located in Nagaland, is a significant geological site that offers valuable insights into plate tectonics and earth's crust formation.</li> <li>The Ophiolite formations in this region are some of the oldest and most well-preserved, offering a glimpse into the early history of the Earth's geological processes.</li> </ul>

### Significance of the additions to UNESCO's tentative list

- **Geological Diversity:** These sites showcase India's diverse geological history, from ancient volcanic formations to tectonic shifts and coastal erosions. The addition of these sites highlights India's geological wealth and the scientific importance of understanding natural processes.
- **Biodiversity and Conservation:** Sites like the Tirumala Hills and Naga Hill Ophiolite are critical for maintaining biodiversity, with many endemic species relying on these ecosystems. Their inclusion emphasizes the need for ecological conservation and environmental protection.
- **Tourism and Local Economy:** Recognition by UNESCO can lead to increased global attention, which could result in better tourism infrastructure, raising awareness about the importance of preserving these sites. Local communities will benefit from sustainable tourism and conservation efforts.
- **Cultural and Spiritual Significance:** Some of these sites, such as Tirumala Hills and Varkala, are also culturally significant, attracting pilgrims and tourists alike. This

fusion of natural heritage with cultural and religious importance strengthens the global appeal of these sites.

### Conclusion

The inclusion of these seven natural sites on UNESCO's Tentative List highlights India's diverse geological and ecological heritage. It underscores the nation's commitment to preserving its natural wonders while fostering sustainable tourism and conservation. This recognition not only enhances global awareness but also emphasizes the importance of protecting India's unique ecosystems for future generations.

#### EXPECTED QUESTION FOR UPSC CSE

##### Prelims MCQ

Q. Which of the following natural heritage sites was recently added to India's Tentative List of UNESCO World Heritage Sites in 2024?

- (a) Valley of Flowers, Uttarakhand
- (b) Varkala Cliffs, Kerala
- (c) Western Ghats
- (d) Kaziranga National Park, Assam

Answer: (b)

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# GOVERNMENT SCHEMES

## ADI KARMAYOGI ABHIYAN: BUILDING TRIBAL LEADERS AT THE GRASSROOTS

**Why in News:** The Ministry of Tribal Affairs launched the Adi Karmayogi Abhiyan, which is expected to be the world's largest tribal grassroots leadership programme and will be launched under Dharti Aba Janjatiya Gram Utkarsh Abhiyan (DAJGUA).

### Key Details

- The goal is to enhance responsive governance and to connect a new generation of tribal leaders at the local level in India.

### Key Objectives

- To empower the tribal communities and usher in people-centric governance.
- Develop a **network of 20 lakh tribal leaders** in 1 lakh villages, 550 districts, and 30 states/UTs.
- Enable **Village Vision 2030** as a trajectory of development.
- Facilitate end-user delivery of government schemes through **100,000 Adi Sewa Kendras** (one-stop service centres).
- Document and strengthen the voices of tribal communities for development.

### Key features

- **Training & Capacity Building:**
  - ✓ **Multi-level workshops at hierarchical level:** State → District → Block → Village.
  - ✓ Events like candle-lighting, role-play, knot-tying, fishbowl sessions and human knots are used to explain problem-solving, teamwork and self-reliance.
  - ✓ Benefits of a cadre of trainers: 240 state-level master trainers, 2,750 district-level trainers, 15,000 block-level trainers, Two million village-level volunteers 1.5 million village-level volunteers, with 20 million trains.
- **Institutional Mechanisms**
  - ✓ **Adi Sewa Kendras:** 1-2 hrs once a fortnight for guidance, governance, and scheme facilitation.
  - ✓ **Muttram Spaces:** Community spaces for collective learning, dialogues and breaking of hierarchies.
  - ✓ **Vision 2030 for Village:** Promotion of participatory visioning processes, including 'Dream paintings' and workshops for every tribal village.
- **Volunteer Engagement:**
  - ✓ **Adi Karmayogi:** Administrative machinery of the state acting as the vehicle of responsive governance.
  - ✓ **Adi Sahyogi:** Youth, teachers, doctors and other passionate service providers who offer pathways to health, education and awareness.

- ✓ **Adi Saathi:** SHG members, community elders, and tribal leaders creating community participation on the ground.

- **Digital Backbone:** Registration, training, monitoring, feedback and sharing of **changemaker** stories facilitated by the **Adi Karmayogi Portal**.

### Significance of the Adi Karmayogi Initiative

- Empowers participatory grassroots governance.
- Encourages tribal leadership and local solutions to problems.
- Guarantees efficient last-mile delivery of government programmes.
- Contributes to national visions such as Viksit Bharat-2047 and, in the context of the Sustainable Development Goals (SDGs).
- Supports the existing flagship programmes of PMJANMAN, Dharti Aba Janjatiya Gram Utkarsh Abhiyan and the National Sickle Cell Anaemia Elimination Mission.

### Conclusion

Adi Karmayogi Abhiyan is an innovative intervention in tribal development based on its approach of capacity building, participatory governance and digitisation. It promotes local leadership, responsive governance, and the solutions to tribal problems.

### EXPECTED QUESTION FOR UPSC CSE

#### Prelims MCQ

Q. Which of the following is the primary objective of Adi Karmayogi Abhiyan:

- (a) To develop tribal regions like the industrial areas
- (b) Build a network of 20 lakh tribal change leaders to uphold participatory governance
- (c) Provide direct financial support to tribal families
- (d) Conduct tribal cultural programmes in the states

**Answer: (b)**

## INCENTIVE SCHEME TO PROMOTE CRITICAL MINERAL RECYCLING

**Why in News:** Recently, the Union Cabinet chaired by Prime Minister Narendra Modi approved a ₹1,500 crore Incentive Scheme to promote Critical Mineral Recycling in India. This scheme comes under the National Critical Mineral Mission (NCCM) umbrella plan which aims mainly at supply chain resilience and mineral security.

### Key Details

- **Financial Outlay:** ₹1,500 crore
- **Duration:** 6 years (FY 2025-26 to FY 2030-31)
- **Eligible Feedstock:** E-waste, Lithium-ion battery (LIB) scrap, Catalytic converters and other industrial/vehicle scrap

- **Beneficiaries:** Large established recyclers, Small/new recyclers & start-ups (1/3rd of funds earmarked for them)
- **Incentive Mechanism**
  - ✓ **Capex Subsidy:** 20% subsidy on the plant & machinery for time-to-market production.
  - ✓ **Opex Subsidy** (on incremental sales over base year FY 2025-26):
    - 2nd year (FY 2026-27) 40% subsidy
    - 5th year (FY 2030-31) 60% subsidy
- **Incentive Ceilings:**
  - ✓ **Large entities:** ₹50 crore (with ₹10 crore max Opex subsidy)
  - ✓ **Small entities:** ₹25 crore (with ₹5 crore max Opex subsidy)

#### Expected Outcomes

- By this project India will be able to **annually recycle 270 kilotons of waste materials** which will help to reduce waste, conserve resources, and promote India's circular economy.
- The project is going to **allow manufacturing of 40 kilotons of critical minerals every year** demanded by the clean energy, electronics, and advanced industries sectors.
- This program has been constructed to **attract almost ₹8,000 crore in investments**, which will strengthen industrial infrastructure, technology adoption, and sustainable growth.
- Moreover, this project will **create about 70,000 direct and indirect jobs**, which will lead to an increase in employment, skill development, and regional economic opportunities.

## PM MITRA YOJANA

**Why in News:** The Government of India has announced the PM Mega Integrated Textile Region and Apparel (PM MITRA) Scheme to scale up and upgrade India's textile industry.

#### Key Details

- **Seven states** have been chosen - Tamil Nadu, Telangana, Karnataka, Maharashtra, Gujarat, Madhya Pradesh, and Uttar Pradesh to operationalize PM-MITRA by 2026-27.
- This is in line with India's attempt to grab a larger portion of the world textiles and apparel business by **providing world-class infrastructure and eliminating waste.**

#### PM MITRA Scheme

- **Introduction:** 2021, under the **Ministry of Textiles**
- **Objective:** To develop a unified ecosystem for the entire textile value chain: **Farm → Fibre → Factory → Fashion → Foreign markets (5F Vision).**
- **Execution:** By **Special Purpose Vehicles (SPVs)** formed by the Central and State governments, running on a public-private-based mode.
- **Period:** From 2021–22 to 2027–28.
- **Development Capital Assistance:** Development support for common infrastructure & other development activities in the park up to Rs 10 crore/ha to the extent of 70% of the project cost, subject to a maximum of Rs 5 crore per park.
- **Competitive Incentive Support (CIS):** Up to ₹300 crore per park to encourage manufacturing units to establish operations.
- **Features of textile parks:** Incubation centres, design studios, testing facilities, common processing and effluent processing units, warehousing and logistics hubs, plus worker housing, which makes for really integrated and sustainable clusters.

#### Significance of the Scheme

- **Enhancing Global Competitiveness:** With the entire textile value chain being concentrated in a single location, the scheme significantly reduces logistics costs, turnaround time, and wastage helping Indian textile exports to become more competitive vis-à-vis countries like Bangladesh and Vietnam.
- **Employment Generation:** Around ₹70,000 crore investment in all parks will generate about 20 lakh jobs (direct + indirect), helping the young labour force, particularly women workers.
- **Stimulating Domestic & Foreign Investment:** The scheme will bring in both FDI as well as domestic investment in the textile and apparel sector.
- **Technological & Infrastructure Upgradation:** Advanced machinery, digital solutions and sustainable production principles will be encouraged. PM MITRA will transform the outdated Indian textile infrastructure and enhance productivity.
- **Promotes SDG 9 Industry, Innovation & Infrastructure:** Develops hi-tech industrial clusters; encourages innovation in technical textiles; supports environment-friendly manufacturing.

#### National Critical Mineral Mission (NCCM)

- **Duration:** FY 2024-25 to FY 2030-31
- **Budget:** ₹16,300 crore + ₹18,000 crore from PSUs
- **Nodal Ministry:** Ministry of Mines
- **Objectives:**
  - ✓ Secure India's critical mineral supply chain.
  - ✓ Get minerals from not only ground but also from foreign countries.
  - ✓ Assist Indian value chains to pass through stages: exploration → mining → beneficiation → processing → recycling.
  - ✓ Foster the growth of innovation, patenting, skill development, and the global competitiveness of the country.
- **Governance Framework**
  - ✓ **Mission Secretariat:** Led by a Joint Secretary, supported by a multidisciplinary team of professionals from geology, finance, and mining.
  - ✓ **Empowered Committee on Critical Minerals:** The Cabinet Secretary is the Chairperson and the related ministries are the members.

### Textile Sector – Present Situation

- **Economic Contribution:** It accounts for 2% of GDP and 12% of manufacturing GDP.
- **Employment:** Employs 45 million people and provides 60 million indirect jobs – the second largest source of employment after agriculture.
- **Exports:** USD 44.4 billion in FY22, a 41% YoY growth.

### Way Forward

- **Strengthen Trade Defenses:** Take tough trade defense actions including imposition of anti-dumping and countervailing duty on cheap textile imports to protect domestic manufacturers and uphold its right in the WTO to ensure level playing field globally.
- **Mission-Mode Infrastructure Development:** Park infrastructure like power, water, logistics, plug-and-play facilities etc. to be developed in time to enhance operationalisation and Investor confidence.
- **Enhance Private Sector Participation:** Invite anchor investors and PPP models for technology, management efficiency and financial efficiency in textile parks.
- **Facilitate Sustainable & Green Manufacturing:** Support sustainable manufacturing practices, including zero liquid discharge systems and use of renewable energy to help India's textile industry compete globally in a sustainable manner.
- **Skilled Workforce and Industrial Readiness:** Scale-up training programmes under SAMARTH and related schemes to provide a trained workforce skilled in the latest textile and apparel techniques, leading to quality production and employment generation.

### Conclusion

The PM MITRA Scheme is a revolutionary scheme for the Indian textile sector that caters to establishing integrated textile parks on the global standards that will bring down the costs, bring in investments, generate jobs, and upgrade technology.

#### EXPECTED QUESTION FOR USC CSE

##### Prelims MCQ

Q. The 5F Vision under PM-MITRA scheme stands for

- (a) Farm, Fibre, Factory, Fashion, Foreign
- (b) Fabric, Fibre, Finance, Fashion, Foreign
- (c) Farm, Fibre, Finance, Factory, Fashion
- (d) Fibre, Factory, Fashion, Foreign, FDI

**Answer: (a)**

## MUKHYAMANTRI MAHILA ROJGAR YOJANA WOMEN EMPLOYMENT SCHEME

**Why in News:** The Bihar government has launched the Mukhyamantri Mahila Rojgar Yojana to increase women's participation in the state workforce and make them self-reliant.

### Objectives:

- The main objective of the Mukhyamantri Mahila Rojgar Yojana is to **foster business and self-entrepreneurship among women**, which subsequently promotes their financial independence.
- **The scheme aims to:** Levy reduction on rural out-migration, Household Income Increase, Women-fuelled community programmes reinforce.

### Scheme Highlights:

- **Financial Assistance:** All the deserving girl entrepreneurs will be granted ₹10,000 for an initial transaction to begin their enterprise via Direct Benefit Transfer (DBT).
- **Additional financial assistance:** After six months, up to ₹ 2 lakh in additional financial assistance can be offered to women who prove themselves in business.
- **Implementation:** Department of Rural Development and Bihar Rural Livelihood Promotion Society.
- **Sectoral Flexibility:** The recipients can select enterprises in the area of farming, raising livestock, crafts, sewing, weaving or some other small-scale operation.
- **Training and Market Access:** Community resource persons from SHGs will provide training, mentorship and guidance and the women's products will be given market access through the Gramin Haat-Bazaars.

### Conclusion

Mukhyamantri Mahila Rojgar consolidates the rural economy and social fabric of the state while supporting women to transform them into rural entrepreneurs through financial help, skill training and marketing enablement.

# REPORTS

## GLOBAL INNOVATION INDEX 2025

**Why in News:** India climbs to 38th rank in Global Innovation Index (GII) 2025: India has improved its rank to 38 among 139 economies in the World Intellectual Property Organization (WIPO) Global Innovation Index (GII) 2025, from 48th in 2020 and 81st in 2015.

### Global Innovation Index (GII)

- ✓ **Started:** 2007
- ✓ **Published by:** WIPO (World Intellectual Property Organisation)
- The index is a measure of the strength of a country's innovation system in terms of its outputs through investment in innovation, technological development, rates of adoption, and impact on society.
- Scope: About 139 economies and more than 80 indicators of input and output with the focus on innovation input (institutions, human capital, infrastructure, market and business sophistication) and innovation output (knowledge, technology outputs, creative outputs).
- Helps governments, researchers, and industries benchmark the performance of their innovation across the world.
- Facilitates policy development to enhance economic competitiveness and the adoption of technology.

### Global Innovative Index 2025 : Key Highlights

- **Top 3 Most Innovative Countries:** Switzerland (66), Sweden (62.6), United States (61.0)
- **Regional Insights:**
  - ✓ **Europe:** 15 countries rank among the top 25, six of which are in the top 10.
  - ✓ **North America:** USA 3rd rank, Canada 17th rank
  - ✓ **SEAO (Southeast, East Asia, Oceania):** Emerging as innovation hubs
  - ✓ **China:** 10th rank; Strong in R&D expenditure (2nd globally) and patent filings.
  - ✓ **India:**
    - Most positive performance in Knowledge & Technology Outputs (22nd rank) and Market Sophistication (38th rank)
    - Inadequate performance in Business Sophistication (64th rank), Infrastructure (61st rank), and Institutions (58th rank).
    - Top Indian Innovation Clusters: Bengaluru (21st rank), Delhi (26th rank), Mumbai (46th rank), Chennai (84th rank).

### Significance for India

- **Strategic Policy Validation:** Schemes such as Startup India, Make in India, PLI Scheme, IndiaAI Mission, and Atal Tinkering Labs have been instrumental in India climbing up in the GI.

- **Global Recognition:** India's innovation ecosystem is recognised as the finest in lower-middle-income economies, resulting in increased investor confidence and international ties.
- **Emerging Tech Leadership:** Patent filing growth (6th globally), deep-tech startups, and clean tech initiatives suggest it could be the next strong innovation hub globally.
- **Inclusive Growth Potential:** Almost half of the startups recognised by DPIIT are from tier-2 and tier-3 cities, which is a testament to the regional innovation.

### Challenges in India's Innovation Ecosystem

- **Low R&D Investment:** General expenditure on Research and Development is ~0.65% of GDP, much less than in the USA (3.5%), South Korea (4.9%), and Israel (5.6%).
- **Public Sector Dominance:** The private sector is funding only 36.4% of the total R&D (2020–21), which is contrary to the developed economies.
- **Poor Industry-Academia Linkages:** This disconnect limits the potential for research commercialisation and interdisciplinary collaboration.
- **Focus on Strategic Sectors:** Traditional focus on defence & space resulted in neglect of industry-sponsored R&D in futuristic technologies such as semiconductors and advanced materials.
- **Risk-Averse Industrial Culture:** Preference for foreign technologies; startups are more focused on IT and e-commerce, rather than deep-tech innovations.
- **Bureaucratic Hurdles:** Procedural impediments in technology transfer, IP-related hurdles and delay in commercialisation.

### Way Forward

- **Enhance R&D Investment:** Raise General expenditure on research on Development to 2% of GDP over the next 10 years.
- **Private funding:** Attract private and philanthropic funds and make full use of the Rs 1 lakh crore Research, Development and Innovation (RDI) fund.
- **Encourage Research Led by Universities:** Empower Higher Education Institutions to lead upstream research and support industry commercialisation.
- **Public-Private Innovation Hubs:** Industry-specific hubs for AI, semiconductors, cleantech, industrialised shared labs, testing centres, and venture funds.
- **Promote Cross-Sector Collaboration:** Industry comments (CleanTech Council) on priorities for funding and policy actions.
- **Promote Regional Innovation Clusters:** Scale up work in tier-2 and tier-3 cities to work with rural agro-tech and social enterprises.

- **Enhance Intellectual Property Regime:** Streamline the patent processes, and encourage technology transfer from labs to startups.

## Conclusion

The advancement of India to the 38th position in GII 2025 is attributable to the consistent increase in the capacity for innovation and robust policy measures, and it may have positive implications on the growth of new startups and deep-tech industries.

### EXPECTED QUESTION FOR UPSC CSE

#### Descriptive Question

Q. Examine India's performance in the Global Innovation Index 2025. Comment on the significant problems in the Indian innovation ecosystem and give suggestions to develop it. [250 Words] [15 Marks]

## STATE FINANCES REPORT

**Why in News:** The Comptroller and Auditor General (CAG) has issued its first decadal review, a health check of the finances of 28 states (2013–14 to 2022–23).

### Key finding of the Report:

- **Debt Growth:** Public debt swelled 3.4 times from ₹17.57 lakh cr in FY 2014 to ₹59.60 lakh cr in FY 2023. Thus, the debt-to-GSDP ratio increased from 16.7% to 23%.
- **Inter-State Variation:**
  - ✓ **Highest Debt-to-GSDP States:** Punjab 40.35%, Nagaland 37.15%, West Bengal 33.70%;
  - ✓ **Lowest Debt-to-GSDP:** Odisha 8.45%, Maharashtra 14.64%, Gujarat 16.37%.
- **Sources of Borrowing:**
  - ✓ **Borrowings from the market:** Government bonds, T-bills, Commercial papers, and any kind of security or instrument.
  - ✓ **Institutional finance:** LIC, NABARD.
  - ✓ **Central assistance** provided by the centre (e.g., GST compensation, special assistance).

### Challenges

- **Less room for taxation:** With the Goods and Services Tax (GST), the previous taxes imposed by states, like VAT, entertainment tax, and entry tax, were merged with GST leaving less room for state taxation.
- **Structural Fiscal Distortion:** The states spend two-thirds of total public expenditure (education, health, infrastructure, welfare) but raise less than one-third of overall revenues.
- **Rising Financier-Type Debt:** Market borrowings are more expensive and non-concessional and thus attract higher interest payments.
- **Rising welfare and subsidy burden:** Populist welfare schemes including farm loan waivers, free electricity, cash-transfer schemes and subsidies have swelled revenue expenditure without creating productive assets.

- **Rising Cost of Borrowing:** States have to pay higher interest rates than the Centre for loans because of perceived risk differentials. This raises their interest-to-revenue ratio, which in some states is over 20%.

### Implications

- **Threat to Fiscal Federalism:** Once states owe large amounts of debt, their financial independence is compromised, and they must seek help from the Centre.
- **Hazard of Debt Trap:** Persistent borrowing without revenue growth results in unsustainable debt dynamics. Interest payments constitute a significant proportion of the states' budgets.
- **Development expenditure is crowded out:** With rise in cost of debt-servicing, capital expenditure (capex) on infrastructure, irrigation and industrial development is getting squeezed. That, in turn, limits the state's growth potential over the long term.
- **Burden on Future Generations:** Continued borrowing results in an intergenerational fiscal burden, in which future taxpayers are made to pay for today's unproductive expenditure.
- **Regional Disparities and Fiscal Conditions:** The highly indebted states (Punjab, WB, and Kerala) have considerably less space for infrastructure and welfare spending as against the ones which are fiscally prudent (Odisha, Gujarat, and Maharashtra).

### Way Forward

- **Revenue Reforms:** Improve GST compliance system and broaden the tax base to upgrade the revenue buoyancy. Lease out unused or underutilised public assets and raise revenues from avenues like tourism and mining, and through novel vehicles such as green bonds.
- **Expenditure Rationalisation:** Public expenditure should be reoriented towards productive capital formation rather than towards such short-term populist palliatives.
- **Fiscal monitoring:** Implement performance budgeting, and institutionalize periodic spending reviews for enhancing fiscal efficiency.
- **Debt Management:** Rolling over expensive debt and tapping other sources of funds such as NSSF and infrastructure bonds. Put debt ceilings in place, consistent with the FRBM Act 2003, to sustain fiscal prudence.
- **Institutional and Policy Measures:** Set up a Public Debt Management Agency (PDMA) to promote efficient and transparent debt management.
- **Constitutional bodies:** Enhance the State Finance Commissions and CAG monitoring for better fiscal accountability and coordination of the centre and state.

### Conclusion

Sustaining state finances requires a judicious borrowing strategy and the implementation of efficient expenditure management to enhance fiscal space while maintaining fiscal autonomy and the capacity to support balanced growth and prevent erosion of economic wellbeing across generations.

## EXPECTED QUESTION FOR UPSC CSE

### Descriptive Question

Q. In relation to mounting state debt in India, comment on the need to strengthen public financial management. [150 Words] [10 Marks]

## RETHINKING HOMESTAYS: NITI AAYOG'S VISION FOR SUSTAINABLE TOURISM

**Why in News:** NITI Aayog, along with the Internet and Mobile Association of India (IAMAI), launched the report "Rethinking Homestays: Navigating Policy Pathways" on 22 August 2025. The study tries to understand the untapped potential of homestays in the tourism supply chain of India with special emphasis on the three aspects – inclusive growth, local entrepreneurship, and cultural sustainability.

### About Homestays

- **Definition:** Homestay is a unique residential tourist model where tourists live with a local family and get involved in the local culture, like food and lifestyle.
- **Significance:**
  - ✓ Provides inexpensive and genuine travel experiences.
  - ✓ Encourages rural and semi-urban entrepreneurship.
  - ✓ Promotes sustainable tourism through community participation.
  - ✓ Assists in regional equilibrium by promoting unexploited tourist spots.

### Key recommendations from NITI Aayog Report

- **Model Policy Framework:** States should implement a consistent and minimal regulatory structure to streamline the process and invite participation.
- **Digital Portal:** Creation of centralised mechanism for the registration, compliance monitoring, etc. to ensure reduction of paperwork and better accessibility.
- **Financial Incentives:** The change of focus now should be from individual homestays to destination-based tiered incentives, focusing on 'marginalised' areas that offer tourism potential.
- **Capacity Building:** Training in hospitality, digital tools and safety standards could lead hosts to provide better services and become more efficient as a business.
- **Inclusive Development:** Promote community involvement and equal distribution of benefits and protect the heritage so that regions of tourism grow in a sustainable and balanced manner

### Significance of homestay-based tourism

- **Economic Potential:** Income generation potential and is particularly helpful for women and youth; it also benefits the rural economy by providing employment in backward areas.
- **Cultural Value:** In local communities, homestays preserve tradition, contribute to the resilience of the local food, crafts and culture, and help in the use of local food and culture products.

### Challenges in the Homestay Sector

- **Policy Disparities:** Different states in India have their own processes, guidelines and policies for registration, taxation, incentives, which leads to confusion, delays and non-utilisation of incentives.
- **Cumbersome Compliances and Taxation:** Multi-layered compliances and ambiguous tax regimes discourage small house owners from joining this sector.
- **Poor digital penetration:** Several rural hosts do not have access to or the facility to use digital platforms to hail bookings.
- **Environmental and Capacity Pressure:** Over-visitation associated with mass tourism is generating pressure on local resources, infrastructure and heritage in a number of popular destinations.
- **Quality and Safety Concerns:** The absence of systematic inspections could have an effect on the quality of services and on the safety of guests, as well as on the confidence of consumers in homestays.

### Way Forward

- **Adoption of model policy:** States are advised to adopt the model policy proposed by NITI Aayog that streamlines the registration, compliances and the incentive framework.
- **Digital Enablement:** Establish a single-window portal for registrations, renewals, bookings and payments, bringing in more transparency and efficiency.
- **Skill and Capacity Building:** Host training in hospitality, safety, and digital management & raise levels of women and youth participation.
- **Sustainable Development:** Control the development of the homestay promotional network based on carrying capacity while environmentally friendly measures are encouraged.
- **Inclusive Local Participation:** Promote community engagement, fair distribution of benefits, and local arts and culture in order to promote sustainable and inclusive tourism.

### Conclusion

NITI Aayog's homestay report sets the stage for an institutionalised and sustainable inclusive homestay ecosystem in India. With the right policy, with digital infrastructure baked in, supporting local entrepreneurs and ensuring the culture remains intact, India will be the definitive leader in experiential travel.

## EXPECTED QUESTION FOR UPSC CSE

### Descriptive Question

Q. Assess the role of homestays in the promotion of sustainable and inclusive tourism in India with reference to the model policy framework recommended by the NITI Aayog. [150 Words] [10 Marks]

## RISE IN FEMALE WORKFORCE PARTICIPATION

**Why in News:** Recently, the Ministry of Statistics and Programme Implementation (MoSPI) has released the Periodic Labour Force Survey (PLFS) Report featuring women's workforce participation on the rise.

### Key Details

- **Surge in Female Workforce Participation:** Women's WPR recorded a steep rise from 22% in 2017-18 to 40.3% in 2023-24 (PLFS).
- **Declining Unemployment:** The female unemployment rate has fallen from 5.6% (in 2017-18) to 3.2% (in 2023-24).
- **Rural vs. Urban Shift:** During the same period rural women's employment jumped 96 per cent as compared to a 43 per cent rise in urban employment.
- **Inclusion in the formal sector:** In the past 7 years, 1.56 crore women have joined the formal workforce (EPFO data).
- **Coverage of the unorganised sector:** 16.69 crore women signed up under e-Shram (Aug 2025), availing the benefits of social security.
- **Employment and Education for Women:** There is an upward trend in employability among female graduates, rising from 42% (2013) to 47.53% (2024), with employability among women with higher education increasingly growing; the WPR for women with PG & above increased from 34.5% (2017-18) to 40% (2023-24).
- **Self-Employment Boom:** The proportion of self-employed women rose by 30 percent from 51.9 to 67.4 percent (survey: 2017-18 to 2023-24).
- **Startup Ecosystem:** Nearly half of the DPIIT-registered startups have at least one-woman director (74,410 out of 1.54 lakh).
- **Financial Inclusion:** Women got 68 per cent of total MUDRA loans (35.38 lakh loans worth ₹14.72 lakh crore). 44% of PM SVANidhi beneficiaries are women street vendors.
- **MSME Growth:** Women-owned MSMEs rose by nearly two-fold from 1 crore (2010-11) to 1.92 crore (2023-24), creating 8.9 lakh new jobs for women.
- **Gender Budgeting:** 429% increase in the last decade (₹0.85 lakh crore in FY14 → ₹4.49 lakh crore in FY26).
- **Central and State Support:** There are 70 central schemes (15 ministries) + 400+ state-level schemes that support female entrepreneurship.

### Significance of Women-Led Development for Viksit Bharat 2047

- **Economic growth:** To become a 3 trillion-dollar Indian GDP, 70% female workforce participation is key.
- **Social Empowerment:** Women having financial autonomy results in better household welfare, health & education.
- **Innovations & leadership:** When women participate in startups, MSMEs & corporate boards, decision-making is more diverse & inclusive.

- **Rural transformation:** Women entrepreneurs lead rural self-reliance and building of rural INDIA.

### Obstacles to Women-Led Development in India

- **Low level of Female Labour Force Participation (FLFP):** Although growing, at 40.3%, India's FLFP rate is still below the global average (~47%) and far away from developed countries' levels of >60%.
- **Informal sector concentration:** More than 80% of women workers are part of the informal/unorganised sector, receiving meagre wages and with high job insecurity and no benefits.
- **Credit and Finance Issues:** Even as they make strides through MUDRA and SVANidhi, women are confronted with impediments of collateral requirements, banking literacy and formal credit.
- **Digital Divide:** Only 33% of women in India have access to the internet as opposed to 57% of men (NSSO).
- **Patriarchal Norms:** Women are still largely restricted to unpaid domestic work by entrenched societal stereotypes, preventing them from joining the formal workforce.
- **Limited Use of Gender Budgeting:** Although allocations have dramatically increased (429%), many ministries still do not have monitoring tools to assess real results.

### Way Forward

- **Policy Integration:** Ensure gender-based critical perspectives are mainstreamed in all national plans and policies.
- **Digital & Financial Inclusion:** Promote women entrepreneurs' equal access to finance, digital platforms, and fintech solutions.
- **Skill Upgradation:** Emphasize STEM, AI, robotics, and green jobs to get women ready for Industry 4.0.
- **Workplace Reforms:** Enhance maternity leave, introduce flexible working hours, and enforce workplace safety norms.
- **Rural empowerment:** Expand the reach of SHGs, NRLM and community-based entrepreneurship initiatives.

### Conclusion

As more influential women are emerging as entrepreneurs, innovators and leaders, they have the opportunity to play a pivotal role in the realisation of India's vision of Viksit Bharat @2047.

#### EXPECTED QUESTION FOR UPSC CSE

##### Descriptive Question

Q. Study the patterns, enablers, and obstacles to women's participation in the labor market in India. Propose policy initiatives to maintain and increase this change. [10 Marks]  
[150 Words]

**Why in News:** The Annual Survey of Industries (ASI) 2023–24 has been released by the Ministry of Statistics and Programme Implementation (MoSPI).

### Key Details

- The ASI provides the basic framework for the **analysis of industrial development in the country**.
- It is the fulcrum of industrial policy since it **monitors the dynamics of output, value addition, employment, and capital formation in registered factories**.
- The ASI is conducted under the provision of the Collection of Statistics Act 2001 (Act No. 15 of 2001) as amended by the Collection of Statistics (Amendment) Act, 2017 (Act No. 17 of 2017).
- **Coverage:** Factories registered under the Factories Act, 1948; Bidi and cigar units under the Bidi and Cigar Workers (Conditions of Employment) Act, 1966; Electricity undertakings not registered with the Central Electricity Authority (CEA)
- **Exclusions:** Defence establishments, oil depots, railway workshops, gas storage, departmental units, etc. Conducted by: National Statistical Office (NSO), MoSPI Started in: 1960 (base year 1959); annual since 1972.

### Dominant Findings of the ASI 2023–24

- The top 5 industries on a GVA basis in Indian manufacturing - **Basic metals, Motor Vehicles, Chemicals and Chemical Products, Food Products, Pharmaceuticals**
- Leading 5 states in terms of employment - **Tamil Nadu, Gujarat, Maharashtra, Uttar Pradesh, and Karnataka**.
- **Growth indicators:**
  - ✓ **Growth:** Gross Value Added (GVA) is up by 11.89% over the previous year.
  - ✓ **Industrial Output:** 5.80% Growth
  - ✓ **Average Earning Worker:** 5.6% Growth

### Significance of ASI Report

- **Policy Development:** The ASI compiles accurate and detailed information on the Indian industrial sector, which is incorporated into the policy formulation. These statistics are the premium ingredient for the respective ministries' policy development, i.e., industrial policy, trade policy, and labour and job-related policies.
- **Economic Analysis:** The Figures of ASI operations are very useful for an economist or policymaker to analyse the performance of various categories of industries. It can beta-trend growth, productivity changes, and even competitiveness in manufacturing.
- **GDP Estimates:** The GVA data compiled from ASI would be one of the offshoots in National Accounts Statistics, Cameroon. On the basis of this data, India's Gross

Domestic Product (GDP) will be calculated and will be true to fact.

- **Investment Policy:** An investment policy of sorts is implied by a survey like the ASI just as much as it is in any other investment survey. This practice should guide the public as well as the private sector, which can then make smart bets on the high-yielding rather than the boiling money and resource fields.
- **Regional Planning:** Surveys can help to transform these ideals into feasible plans that enable them to contribute fully to the development of the region and the area and to wipe out the industrial disparity between the states by way of a more balanced approach in the form of comprehensive growth.
- **Labour Market:** Along with industrial force participation, the said survey also provides wage structures and labour productivity, which could assist in evolving potential-based labour laws and employment policies in which employment opportunities will be created.
- **Policy Monitoring:** ASI data constitutes a feedback system for monitoring the impact of the policies and programmes of the government; and, therefore, it can prove to be useful in making midcourse corrections, if considered necessary.

### Conclusion

The ASI 2023-24 illustrates the narrative of India's industrial growth and provides vital inputs for balanced regional development, fact-based policy interventions, and sustainable industrial development.

#### EXPECTED QUESTION FOR UPSC CSE

##### Prelims MCQ

Q. Consider the following statements with reference to the Annual Survey of Industries (ASI):

1. The ASI is an activity of the Ministry of Corporate Affairs.
2. ASI covers the factories registered under the Factories Act, 1948.
3. Defence establishments and railway workshops are also covered by the ASI.
4. The National Statistical Office (NSO) conducts the survey on a yearly basis.

Which of the above given statements are true?

- (a) 2 and 4 only
- (b) 1 and 3 only
- (c) 2, 3, and 4 only
- (d) 1, 2, and 4 only

**Answer: (a)**

# PERSONALITIES IN NEWS

## ACHARYA VINOBA BHAVE (1895–1982)

**Why in News:** Recently Prime Minister Narendra Modi Paid Tribute to Acharya Vinoba Bhave on his 130th Birth anniversary, on 11th September.

### Introduction

- **Acharya Vinoba Bhave** (1895–1982) was an eminent Indian philosopher, social reformer, and a pivotal figure in the independence movement. **Regarded** as the **spiritual heir to Mahatma Gandhi**, he dedicated his life to translating the principles of **Satyagraha** and non-violence into practical programs for social and economic equity, most notably through the **Bhoodan Movement**. Bhave's unique approach sought to achieve social transformation and equitable resource distribution through moral persuasion rather than coercion.

### Early Life, Influences, and Philosophy

- **Early Life and Education**
  - ✓ Born as Vinayak Narahari Bhave on September 11, 1895, in the Kolaba district of Maharashtra, Vinoba Bhave developed a deep affinity for spiritual texts, particularly the **Bhagavad Gita**, from a young age. This spiritual inclination profoundly shaped his philosophical outlook.
- **Association with Mahatma Gandhi**
  - ✓ In **1916**, inspired by a speech delivered by Mahatma Gandhi, Bhave decided to forgo his academic studies. He met Gandhi on June 7, 1916, at the **Kochrab Ashram** in Ahmedabad, marking the start of a profound lifelong discipleship. Bhave fully immersed himself in Gandhi's constructive work, promoting **Khadi**, establishing village industries, and furthering the cause of basic education (**Nai Talim**).
- **The Sarvodaya Philosophy**
  - ✓ Bhave's philosophy was rooted in **Sarvodaya**—a term signifying the welfare and upliftment of all sections of society. He viewed service to humanity as service to God, advocating for a life of austerity, self-reliance, and non-possession.

### Role in the Independence Struggle

- **Constructive Work and Civil Disobedience**
  - ✓ Bhave actively participated in the freedom struggle, spending significant time at the Sabarmati Ashram. He faced multiple arrests throughout the 1920s and 1930s for his involvement in the **Civil Disobedience Movements** and was later imprisoned during the 1940s.
- **The First Individual Satyagrahi (1940)**
  - ✓ Bhave's most distinguished contribution was in **1940**, when Mahatma Gandhi personally selected him to be the **First Individual Satyagrahi**. This non-violent

campaign emphasized moral courage and personal resistance against British policies. He later joined the **Quit India Movement** in 1942.

### Major Social and Reform Movements

- **The Bhoodan Movement (Land Gift)**
  - ✓ The Bhoodan movement began on April 18, **1951**, in **Pochampally**, Telangana. Moved by the distress of landless peasants, Bhave traveled across India on foot, appealing to affluent landowners to voluntarily donate one-sixth of their land. This donated land was then redistributed to the poor, aiming to resolve socio-economic inequality through non-violent persuasion.
- **The Gramdan Movement (Village Gift)**
  - ✓ Following 1954, the movement expanded into **Gramdan**. This was a more radical initiative where entire villages were persuaded to collectively donate all their land to a village council, establishing a model of communal ownership and shared resources.
- **Empowerment Initiatives**
  - ✓ In 1959, Bhave established the **Brahma Vidya Mandir** in Paunar, Maharashtra. This institution was dedicated to empowering women, helping them achieve self-sufficiency while promoting the core Gandhian principles of non-violence within the community.

### Legacy and Recognition

- **Literary Contributions**
  - ✓ Bhave utilized his time in jail and his travels for spiritual study and writing, producing influential works such as **Talks on the Gita** (his most famous work) and **Swarajya Shastra**.
- **Honors and Awards**
  - ✓ Bhave's lifelong commitment to social justice earned him high honors:
    - He was the first recipient of the **Ramon Magsaysay Award for Community Leadership in 1958**.
    - He was posthumously honored with India's highest civilian award, the **Bharat Ratna, in 1983**.

### Conclusion

Acharya Vinoba Bhave's life and work stand as a profound testament to the power of moral conviction in achieving large-scale social change. Through the principles of **Sarvodaya** and the success of the **Bhoodan Movement**, he demonstrated that genuine socio-economic transformation can be achieved through non-violent means, self-reformation, and community spirit. His legacy continues to inspire individuals and policymakers in India and across the globe who seek to pursue inclusive development rooted in compassion and ethical leadership.

## C.P. RADHAKRISHNAN: INDIA'S 15TH VICE PRESIDENT

**Why in News:** C.P. Radhakrishnan was elected as the **15th Vice President of India** on **9th September 2025**, succeeding **Jagdeep Dhankhar**, who resigned from the post.

### Key Details

- C.P. Radhakrishnan secured **452 votes**, defeating former Supreme Court judge **B. Sudershan Reddy**, who polled **300 votes**.
- The election witnessed a **record turnout of 98.2%**, the highest ever in the history of the Vice-Presidential elections.

### About C.P. Radhakrishnan

- Born:** 1957, in Tiruppur, Tamil Nadu
- Early Life:** Began as an **RSS Swayamsevak** and became a member of the **State Executive Committee of the Bharatiya Jana Sangh (1974)**.
- Governorships Held:** Served as **Governor of Jharkhand, Maharashtra, and Telangana (additional charge)**, and also held **additional charge of Puducherry and Odisha**.

### Political Career Highlights

- Parliamentary Roles:**
  - ✓ Two-time **Lok Sabha MP** from **Coimbatore** (1998 & 1999).
  - ✓ Served as **Chairman, Parliamentary Standing Committee on Textiles**, and **Member of Finance and PSU Committees**.
- International Representation:**
  - ✓ Addressed the **UN General Assembly in 2004** and was part of India's **first parliamentary delegation to Taiwan**.
- Party Leadership:**
  - **State President, BJP Tamil Nadu (2004–2007)**.
- ✓ **Administrative Role:**
- ✓ **Chairman, Coir Board, Kochi (2016–2020)** — during his tenure, India's coir exports reached a record **₹2,532 crore**.
- Recent Positions:**
  - ✓ **Governor of Jharkhand (2023–24)**
  - ✓ **Governor of Maharashtra (2024–25)**

### Office of the Vice President of India

Aspect	Details
<b>Constitutional Position</b>	Second-highest constitutional office after the President of India
<b>Relevant Articles</b>	<b>Article 64:</b> Ex-officio Chairman of Rajya Sabha <b>Article 65:</b> Acts as President in case of vacancy or absence
<b>Eligibility</b>	Must be an <b>Indian citizen</b> , at least <b>35 years of age</b> , and <b>eligible for Rajya Sabha membership</b>
<b>Election Process</b>	Elected by an <b>Electoral College</b> comprising <b>all members of Lok Sabha</b>

	<b>and Rajya Sabha</b> , using the <b>Proportional Representation system via Single Transferable Vote</b>
<b>Term</b>	5 years
<b>Removal</b>	Can be removed by the <b>Rajya Sabha</b> with a <b>14-day prior notice</b> before the motion is taken up

### Conclusion

C.P. Radhakrishnan's elevation as Vice President reflects his long-standing service in public life and the BJP's emphasis on regional representation and administrative experience. His parliamentary and gubernatorial experience positions him well to preside over the **Rajya Sabha** and contribute to India's legislative process.

## SUSHILA KARKI – NEPAL'S FIRST WOMAN PRIME MINISTER

**Why in News:** Nepal has appointed **Sushila Karki**, former Chief Justice of the Supreme Court, as the nation's **first woman Prime Minister**. Her appointment follows a major political crisis marked by **youth-led protests**, reflecting a growing demand for transparency, accountability, and democratic renewal in Nepal's governance.

### Background and Context

- Nepal has been experiencing **persistent political instability** since the adoption of its new Constitution in 2015. Frequent changes in government, corruption scandals, and growing disillusionment among the youth have weakened public trust in democratic institutions.
- The latest unrest was triggered by the government's decision to **restrict social media platforms** amid allegations of corruption and suppression of free speech. These measures provoked **mass protests led by Generation Z activists**, symbolizing a generational call for political reform and digital freedom.
- The demonstrations intensified, resulting in **violent clashes** and ultimately compelling then-Prime Minister **K.P. Sharma Oli** to resign. Following the **dissolution of the legislature**, an **interim government** was constituted, and Sushila Karki was appointed as **caretaker Prime Minister** to oversee governance until **fresh elections scheduled for 21st March next year**.

### Profile of Sushila Karki

Category	Details
<b>Birth</b>	7 June 1952, Biratnagar, Nepal
<b>Education</b>	M.A. in Political Science – Banaras Hindu University (India); LL.B. – Tribhuvan University (Nepal), 1978
<b>Judicial Career</b>	Began legal practice in 1979; appointed Justice, Supreme Court of Nepal (2009); became Nepal's first woman Chief Justice (2016)

<b>Milestone</b>	First woman in Nepal's history to serve as both <b>Chief Justice and Prime Minister</b>
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Her judicial tenure was marked by a strong stance on **anti-corruption, rule of law, and judicial independence**, making her a respected figure within Nepal's constitutional framework.

**Significance of the Appointment**

- **Gender Empowerment in South Asia:** Sushila Karki's elevation represents a historic milestone for women's participation in governance in Nepal, aligning with the broader regional trend toward gender inclusion in political leadership.
- **Democratic Transition and Reform:** Her appointment reflects the institutional attempt to **restore public trust** in governance following a crisis of legitimacy. The interim leadership aims to stabilize the political environment ahead of national elections.
- **Symbol of Youth-Led Democratic Assertion:** The **Generation Z protests** underline the evolving socio-political consciousness in South Asia, where digital-native youth are increasingly shaping the discourse on **governance, free expression, and accountability**.
- **Implications for India-Nepal Relations:** Political transitions in Kathmandu hold strategic significance for India. Stability in Nepal contributes to **regional security, cross-border connectivity**, and the success of initiatives like **BBIN and BIMSTEC**. India has expressed support for a **democratic, inclusive, and peaceful transition**.

**Challenges Ahead**

- Managing **political polarization** and ensuring a smooth transition before elections.
- Balancing **youth expectations** with institutional constraints.
- Addressing Nepal's **economic challenges**, particularly inflation, unemployment, and public debt.
- Maintaining **foreign policy equilibrium** between India and China amidst regional competition.

**Conclusion**

Sushila Karki's appointment marks a **transformative moment** in Nepal's democratic journey. It embodies the intersection of **gender progress, judicial integrity, and popular demand for reform**. For India and South Asia, her leadership offers both a test and an opportunity — to reaffirm democratic values, stability, and cooperation in the Himalayan neighbourhood.

**EXPECTED UPSC CSE QUESTIONS**

**Prelims MCQ**

Q. The protests led by Generation Z in Nepal were triggered by:

- Increasing prices of fuel in the country
- A ban imposed by the government on popular social media platforms
- Dispute over water sharing with India
- Citizenship-related constitutional amendment


**Answer: (b)**



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# ARTICLES FROM YOJANA (SEPTEMBER 2025)

## SWACHH BHARAT MISSION (GRAMEEN) & JAL JEEVAN MISSION – PAVING WAY FOR VIKSIT BHARAT @2047

### 1. Introduction and Context

- **Flagship Interventions**
  - ✓ **2014:** Launch of Swachh Bharat Mission (Grameen) (SBM-G).
  - ✓ **2019:** Launch of Jal Jeevan Mission (JJM).
- **Nature of Interventions**
  - ✓ Not just service delivery in sanitation or drinking water.
  - ✓ Aimed at recalibrating governance priorities in rural India.
  - ✓ Addressed long-standing deficits in public health infrastructure.
- **Governance Philosophy**
  - ✓ Inspired by the Prime Minister's motto: "**Sabka Saath, Sabka Vikas, Sabka Vishwas, Sabka Prayas.**"
  - ✓ Represents **inclusive and participatory governance.**
  - ✓ Shift away from top-down delivery models towards community-driven action.

### 2. Core Principles of SBM-G and JJM

- **Jan Bhagidari (People's Participation)**
  - ✓ Central element of both missions.
  - ✓ Communities actively plan, implement, and manage sanitation and water systems.
- **People-Owned & People-Managed**
  - ✓ Strength of collective responsibility sustains services and behaviour long after infrastructure is built.
- **Local Institutions Empowered**
  - ✓ Panchayats and VWSCs take decision-making roles.
  - ✓ Behavioural change embedded at grassroots level.

### 3. Swachh Bharat Mission (Grameen): Sustaining the Sanitation Momentum

- **Achievements in a Decade:**
  - ✓ Declared India as **Open Defecation Free (ODF)** by 2019.
  - ✓ Sanitation coverage improved from **39% in 2014** → **100% in 2019.**
  - ✓ Created **decentralised systems** to adapt to local needs.
  - ✓ Community ownership: sanitation understood, owned, and sustained at village level.
- **SBM Phase II (2020–21 onwards):** Focus on ODF Plus Model villages.
- **ODF Plus Model means:**

- ✓ Sustaining ODF status.
- ✓ Proper solid and liquid waste management.
- ✓ Ensuring visual cleanliness in villages.

- **As of July 2025:**
  - ✓ More than **96% of villages** declared ODF Plus.
  - ✓ **4.70 lakh** villages categorised as ODF Plus Model.
- **Social and Behavioural Shift**
  - ✓ Sanitation became a symbol of **dignity, equity, and national resolve.**
  - ✓ Changed relationship between citizen and state.
  - ✓ Integrated behaviour changes into rural culture.

### 4. Jal Jeevan Mission: Ensuring Water Security

- **Progress and Coverage**
  - ✓ Launched in **2019**, to complement SBM-G achievements.
  - ✓ **By July 2025:**
    - Over **15.67 crore household tap connections.**
    - Crossed **80% rural coverage.**



- **Tackling Geographical Challenges**
  - ✓ Ensured coverage in tough regions:
    - Bundelkhand.
    - Himalayan belt.
    - Deccan plateau.
    - Eastern Ghats.
- Demonstrates **resilience and adaptability**
- **Community Ownership and Role of Women**
- Gram Panchayats and VWSCs are responsible for **planning, execution, monitoring, and maintenance.**
- **Empowering women:**
  - ✓ 24 lakh+ women trained with Field Testing Kits for water quality.
  - ✓ Women became **Jal Sakhis / Jal Sahiyas.**
  - ✓ From water carriers → water managers.

- **Schools and Anganwadis:**
  - ✓ Access to piped water.
  - ✓ Healthier and more dignified environments for children.
  - ✓ Girls' school attendance improved due to sanitation & hygiene facilities.

## 5. Profound Impact of SBM-G and JJM

### Public Health -

- **Michael Kremer's research:** Universal safe water access could reduce infant mortality by **30%** (~1.36 lakh child deaths annually).
- **WHO Report:**
  - ✓ JJM can prevent 4 lakh diarrhoeal deaths.
  - ✓ Saves 5.5 crore hours daily (mostly women's).
  - ✓ Economic benefits of ₹8.28 lakh crore.
- **SBM-G Impact:**
  - ✓ **WHO (2018):** 3 lakh diarrhoeal deaths avoided in 2019 vs 2014.
  - ✓ **Nature (2024):** 60,000–70,000 infant lives saved annually.

### Women's Dignity and Empowerment -

- UNICEF/BMGF Study (2020): Household toilets enhanced **Suvidha (convenience), Suraksha (safety), Swabhimaan (self-respect)** of rural women.
- Reduced need for women to walk long distances for sanitation or water.
- **Environment and Hygiene**
  - ✓ **UNICEF Study (2018–19):** Groundwater in ODF villages was **12.7 times less contaminated** compared to non-ODF villages.

### Employment Generation -

- Construction phase created:
  - ✓ ~60 lakh person-years of direct employment.
  - ✓ ~2 crore person-years of indirect employment.

### Localised Successes -

- Revived dormant water schemes through Gram Panchayat mobilisation.
- Tribal communities-built water testing and distribution systems.
- Women trained as pump operators – breaking traditional hierarchies.

## 6. SMART Vision for the Future of SBM-G

### S – Sustainability of Assets and Behaviours:

- Shift from infrastructure to systems management.
- Importance of O&M protocols, funding at Gram Panchayat level.
- **Innovations:**
  - ✓ Greywater reuse (Tamil Nadu).
  - ✓ Soak pit standardisation (Rajasthan).
  - ✓ Community O&M models (Kerala, Sikkim).

### M – Making Women Central

- Women as **Rani Mistris, Swachhagrahis, SHGs, Jal Sakhis**.
- SHG-led enterprises: sanitary pad production (Odisha), faecal sludge management (Telangana).
- Sanitation as income and leadership opportunity.

### A – Accelerating Private Sector Role

- Private sector in waste management & circular economy.
- GOBARdhan units integrated with dairies (Maharashtra, Gujarat).
- Potential for CSR-backed projects and sanitation incubators.

### R – Re-establishing Communication

- Communication central to SBM-G's success.
- **Next phase:** awareness about pit emptying, menstrual waste disposal, segregation.
- **Tools:** SBM Academy, WhatsApp lessons, rural influencers, school sanitation clubs.

### T – Training and Technology

- Move towards **Smart Sanitation Villages**.
- **Features:**
  - ✓ Real-time monitoring.
  - ✓ Solar-powered STPs.
  - ✓ Digitised waste collection.
- Training of masons, GPs, sanitation workers in climate-linked sanitation practices.

## 7. Future of Jal Jeevan Mission: Beyond the Tap

- **Extension till 2028**
- Announced in the Union Budget 2025–26.
- **Focus on:** sustainability, functionality, O&M, climate adaptation.
- **Four Strategic Shifts:**
- **Tap Coverage → Water Security**
  - ✓ Hydro-geological mapping.
  - ✓ Springshed development in Himalayas.
  - ✓ Aquifer recharge & rainwater harvesting.
  - ✓ **Initiatives: JSA: Catch the Rain & Jal Sanchay Jan Bhagidari.**
- **Infrastructure → Innovation**
  - ✓ IoT-based water monitoring.
  - ✓ Climate-smart villages.
- **Beneficiaries → Co-creators**
  - ✓ Role of Jal Doots, Jal Sakhis, Jal Sahiyas.
- **Silos → Synergy**
  - ✓ Convergence with health, nutrition, education, and agriculture.
  - ✓ Greywater irrigation for kitchen gardens.
  - ✓ Improved nutrition and reduced stunting.

## 8. Alignment with Sustainable Development Goals (SDGs)

- **SDG 6:** Clean water and sanitation – directly addressed.
- **Other SDGs indirectly advanced:**

- ✓ SDG 3: Health (reduced mortality).
- ✓ SDG 4: Education (girls' attendance).
- ✓ SDG 5: Gender equality (women's empowerment).
- ✓ SDG 8: Decent work (jobs in sanitation/water).
- ✓ SDG 13: Climate action (resilient WASH systems).

## 9. Current Status (as of 2025)

- **Swachh Bharat Mission – Gramin (SBM-G):**

Har Ghar Jal Status <span>📄</span>							
Certified States/ UTs : Goa, A & N Islands, Puducherry, D&NH and D&D, Arunachal Pradesh, Haryana, Punjab							
Reported States/ UTs : Telangana, Mizoram, Himachal Pradesh, Gujarat							
Districts		Blocks		Panchayats		Villages	
Reported <span>📄</span>	Certified <span>📄</span>	Reported <span>📄</span>	Certified <span>📄</span>	Reported <span>📄</span>	Certified <span>📄</span>	Reported <span>📄</span>	Certified <span>📄</span>
190	112	1,906	950 (+1)	1,23,570 (+42)	85,551 (+58)	2,62,595 (+87)	1,67,048 (+157)

## 10. Conclusion – Road to Viksit Bharat @2047

- SBM-G and JJM represent **new governance models** – participatory, inclusive, and resilient.
- **Women and communities** are central actors, not **passive** beneficiaries.
- **Missions** already produced measurable health, social, and economic gains.
- **Future** success depends on:
  - ✓ Ensuring inclusion.
  - ✓ Sustaining infrastructure.
  - ✓ Climate-proofing water and sanitation systems.

By 2047, India aims to become a **self-reliant Swachh and Viksit Bharat** where no one is left behind.

## EMPOWERING WOMEN & NURTURING CHILDREN THROUGH WASH

### Background and Context

- **WASH as a Human Right:**
  - ✓ WASH stands for **Water, Sanitation, and Hygiene**.
  - ✓ Access to clean water, adequate sanitation, and safe hygiene is a **fundamental human right**.
  - ✓ It directly impacts **gender equality, women empowerment, and child development**.
- **Gender Dimensions of WASH:**
  - ✓ In many societies, especially in India, **women and girls bear the disproportionate burden** of sanitation management.
  - ✓ Unpaid domestic labour for water collection or sanitation consumes **several hours daily**, limiting

- ✓ 5.65 lakh ODF Plus villages.
- ✓ 4.70 lakh ODF Plus Model villages.
- ✓ 5.18 lakh with Solid Waste Management.
- ✓ 5.32 lakh with Liquid Waste Management.

- **Jan Jeevan Mission (JJM):**

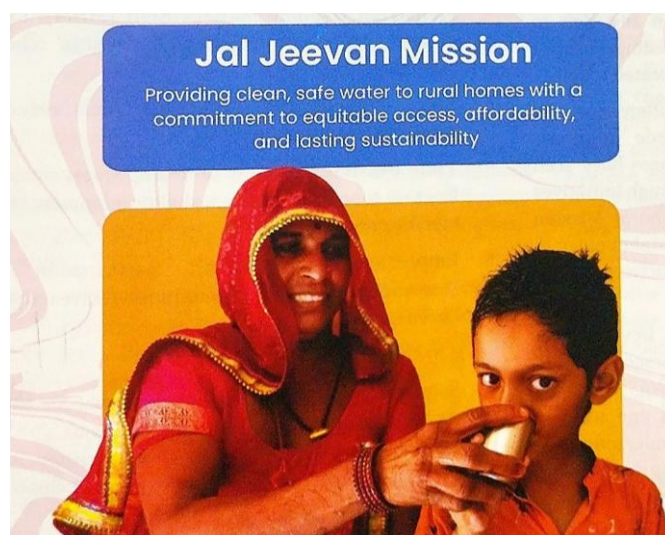
- ✓ 190 districts, 1,906 blocks, 1.23 lakh GPs, and 2.62 lakh villages achieved Har Ghar Jal.

- **Swachh Sujal Gaon:**

- ✓ 1.19 lakh+ villages achieved this benchmark.

opportunities for education, work, and community engagement.

- ✓ Lack of **safe sanitation facilities** increases health risks, harassment, and vulnerability to violence.
- **Child Development and WASH:**
  - ✓ Poor WASH conditions are linked to **high rates of diarrhoea, malnutrition, stunting, and school absenteeism**.
  - ✓ Safe water and sanitation promote **better nutrition, disease prevention, and educational attainment**.
- **India's Efforts:**
  - ✓ Programs like **Swachh Bharat Mission (SBM)** and **Jal Jeevan Mission (JJM)** gave strong momentum to WASH improvements.
  - ✓ The **Ministry of Women and Child Development (MoWCD)** integrated WASH within its welfare schemes to ensure a **direct link between gender justice, nutrition, and child protection**.



## Gender Equality Dimensions of WASH

- **Challenges Women Face:**
  - ✓ **Time Burden:** Women spend long hours collecting water and managing household sanitation.
  - ✓ **Safety & Dignity:** Lack of toilets exposes women to harassment and violence.
  - ✓ **Menstrual Hygiene:** Absence of facilities leads to school dropouts and loss of dignity.
- **Empowerment Opportunities:**
  - ✓ Access to nearby water sources reduces drudgery, enabling women to participate in **education, skill-building, and income generation**.
  - ✓ Women's participation in **community WASH committees** strengthens their role in **decision-making** and leadership.

## Child Well-Being and WASH

- **Health Benefits:**
  - ✓ Reduction in **waterborne diseases** such as diarrhoea, cholera, and typhoid.
  - ✓ Improved sanitation reduces infection rates, boosting **nutrition and nutrient absorption**.
- **Educational Benefits:**
  - ✓ Functional toilets encourage **regular school attendance**, especially among girls.
  - ✓ Hygiene education improves **school readiness and performance**.
- **Early Childhood Development:**
  - ✓ Anganwadi Centres (AWCs) integrate hygiene practices, shaping **lifelong healthy behaviours**.
  - ✓ Reduces risk of disease transmission in communities.

## Major Initiatives by MoWCD Integrating WASH

### (A) Mission Saksham Anganwadi and Poshan 2.0

- **Overview:**
  - ✓ Integrates **Poshan Abhiyaan, ICDS, and SAG (Scheme for Adolescent Girls)**.
  - ✓ Covers **10.16 crore beneficiaries** through a network of **14 lakh AWCs**.
  - ✓ Beneficiaries include pregnant women, lactating mothers, children (0–6 years), and adolescent girls.
- **WASH Contributions:**
  - ✓ **Community-Based Events (CBEs):** Over **7 crore events** since 2018, sensitising families on hygiene.
  - ✓ **Home Visits:** Nearly **2 crore visits per month** to promote maternal and child hygiene.
  - ✓ **Infrastructure:**
    - **10.27 lakh AWCs** with functional toilets.
    - **12.53 lakh AWCs** with drinking water facilities.
- **Behavioural Change Efforts:**
  - ✓ **Poshan Maah (September)** and **Poshan Pakhwada (March-April)** as **Jan Andolans** for mass sensitisation.
  - ✓ Over **3.8 crore WASH awareness activities** reported since 2018.

### • Upgradation of AWCs:

Funds given to States/UTs to promote WASH in **Child Care Institutions (CCIs)**.

- ✓ **2 lakh AWCs** to be transformed into **Saksham Anganwadi Centres** with:
  - Safe drinking water
  - Toilets
  - LED screens
  - Water filtration systems
  - Poshan Vatikas (nutritional gardens)
- **Scheme for Adolescent Girls (SAG):**
  - ✓ Targets **23 lakh girls (14–18 years)** in NE States and Aspirational Districts.
  - ✓ Focus on **nutrition, menstrual hygiene, peer education, and community awareness**.
- **Special Campaign 3.0:**
  - ✓ Nationwide cleanliness drives in AWCs and public spaces.
  - ✓ Mobilised **community volunteers, local governance, and officials** for sustained WASH practices.

### (B) Mission Shakti (Including Beti Bachao Beti Padhao)

- **Focus:**
  - ✓ Addresses **gender discrimination** and emphasises the **well-being of girls**.
  - ✓ Promotes hygiene and sanitation to ensure girls remain in school.
- **Outcome:**
  - ✓ Aims to **break the cycle of gender inequality** caused by lack of sanitation facilities for girls.

### (C) Pradhan Mantri Matru Vandana Yojana (PMMVY)

- **Nature of Scheme:** A **maternity benefit programme** supporting antenatal care and health awareness.
- **WASH Contribution:**
  - ✓ Counselling on hygiene during pregnancy and childcare.
  - ✓ Promotes **clean and safe environments** for mothers and infants.

### (D) Mission Vatsalya

- **Swachhata Action Plan (SAP):**
  - ✓ Annual action plans ensure structured WASH activities.

## Impact of WASH Integration

- **On Women:**
  - ✓ Reduced physical burden of water collection.
  - ✓ Improved personal safety and dignity.
  - ✓ Greater participation in education and livelihood.
- **On Children:**
  - ✓ Reduced child morbidity and mortality.
  - ✓ Better nutrition outcomes and school performance.
  - ✓ Formation of healthy hygiene habits from early childhood.

- **On Communities:**
  - ✓ Greater awareness and behavioural change through **Jan Andolans**.
  - ✓ Ownership and sustainability through **community participation**.

**Conclusion**

- **WASH** is not just an infrastructure goal but a **transformational enabler** of gender justice and child welfare.
- MoWCD has **mainstreamed WASH** into nutrition, **education**, maternal health, and child protection schemes.

- **Continued** success depends on:
  - ✓ **Convergence with other ministries** (health, education, rural development).
  - ✓ **Sustained behavioural change campaigns**.
  - ✓ **Community-led ownership models** for long-term sustainability.

With inclusive policies and community-driven approaches, **India can ensure every woman and child benefits from safe WASH practices**, leading to a healthier, more equitable society.

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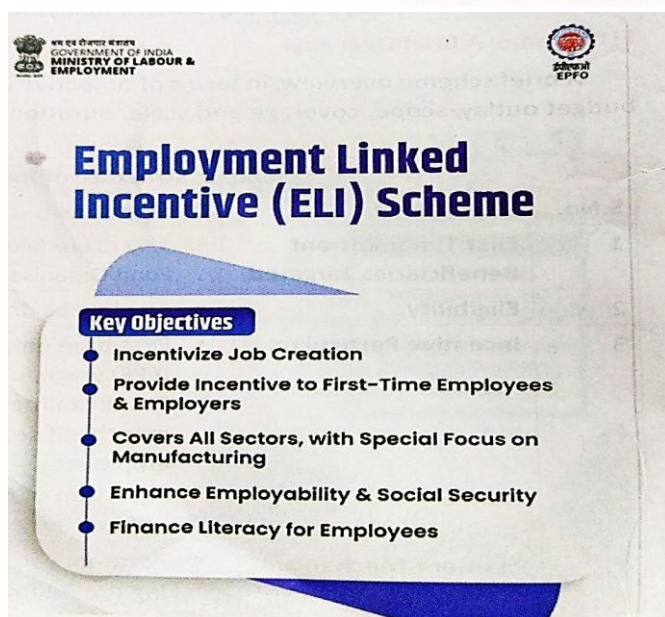
# ARTICLES FROM KURUKSHETRA (SEPTEMBER 2025)

## FOSTERING JOBS, BUILDING BHARAT – ELI SCHEME AS A GAMECHANGER

### 1. Background

- **Announcement and Launch:**
  - ✓ The **Employment Linked Incentive (ELI) Scheme** was announced in the **Union Budget 2024–25** as one of the Prime Minister’s five flagship schemes.
  - ✓ It came into effect from **1 August 2025** with a total budget outlay of **₹99,446 crore**.
- **Core Aim:**
  - ✓ To **restructure the employment ecosystem** of India.

- ✓ Provide opportunities for **employment, skilling, reskilling, and upskilling**.
- ✓ Ensure greater **social security** for India’s youth.
- **Distinctive Approach:**
  - ✓ Unlike earlier training-based schemes, ELI is designed with a **strategic rationale**:
    - Linking **skills directly with jobs**.
    - Creating **joint responsibility** between employers, industries, and government.
    - Moving towards **demand-driven skilling** aligned with industry needs.
    - Boosting **formal job registration** and strengthening formal employment.



### 2. Existing Employment and Skill Development Scenario

- **Evolution of Government Programmes**
  - ✓ Past employment programmes moved from **broad-based welfare approaches** to **targeted skill-based interventions**.

- ✓ **Key objectives:**
  - Equitable access to jobs.
  - Reducing unemployment.
  - Promoting self-reliance.
  - Strengthening the industry workforce.
  - Driving inclusive and sustainable growth.
- **Skill India Mission (SIM)**
  - ✓ Implemented by the **Ministry of Skill Development and Entrepreneurship (MSDE)**.
  - ✓ Focuses on preparing **youth with industry-relevant skills** through:
    - **Pradhan Mantri Kaushal Vikas Yojana (PMKVY)**.
    - **Jan Shikshan Sansthan**.
    - **National Apprenticeship Promotion Scheme (NAPS)**.
    - **Craftsman Training Scheme via ITIs**.
- **Sector Skill Councils (SSCs)**
  - ✓ **36 SSCs**, led by **industry leaders**.
  - ✓ Define **skill needs** and **competency standards** for different sectors.
- **Digital Integration:**
  - ✓ **Skill India Digital Hub** integrates skilling, education, employment, and entrepreneurship under one umbrella.

- **Rural-Focused Schemes:**
  - ✓ **Deen Dayal Upadhyaya – Grameen Kaushal Yojana.**
  - ✓ **Rural Self-Employment Training Institutes (RSETIs).**
  - ✓ Cater to rural youth, focusing on **agriculture, handloom, tourism, etc.**
- **Past Incentive-Based Job Scheme:**
  - ✓ **Aatmanirbhar Bharat Rojgar Yojana (ABRY)** launched in **October 2020** to incentivize employment post-COVID.
  - ✓ Valid till March 2022, it benefitted **60.49 lakh workers** through **1.52 lakh establishments.**
  - ✓ However, ABRY was **short-term and crisis-driven**, while ELI was long-term and **systemic.**

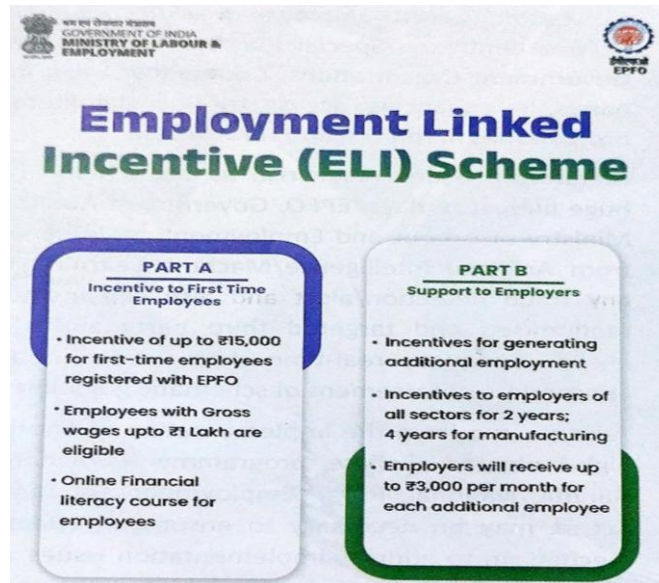
### 3. Why the ELI Scheme?

- **Need for a New Model:**
  - ✓ Existing programmes focused on skilling but often failed to guarantee actual jobs.
  - ✓ India’s demographic dividend requires **employment-driven growth** rather than just skill creation.

- **Strategic Interventions:**
  - ✓ **Direct linkage between skills and employment.**
  - ✓ **Employer accountability** through incentivisation.
  - ✓ **Demand-driven training** tailored to industry needs.
  - ✓ **Boost to formal employment** via EPFO-linked registrations.

### 4. ELI Scheme: A Brief Overview

- (As per Table 1 in the text)
  - ✓ **Objectives:**
    - Focus on the **manufacturing sector.**
    - Support **employment generation.**
    - Enhance **employability.**
    - Extend **social security coverage** across sectors.
  - ✓ **Budget** – ₹99,446 crore.
  - ✓ **Scope & Scale** – Pan-India, targeting **3.5 crore jobs in 2 years.**
  - ✓ **Timeframe** – Applicable for jobs created between **1 Aug 2025 – 31 Jul 2027.**
  - ✓ **Major Outcome** Job creation, **formalisation of the workforce**, and wider **social security coverage.**



### 5. Structural Framework of the Scheme

- **Incentives for First-Time Employees**
  - ✓ **Target Group:** 1.92 crore first-time workers registered with EPFO.
  - ✓ **Eligibility:** Employees earning up to ₹1 lakh/month.
  - ✓ **Incentives:**
    - One month’s EPF wage (up to ₹1 lakh).
    - Paid in 2 instalments: after 6 months and after 12 months (with completion of financial literacy programme).
    - Portion locked in a **savings instrument** for future access.
  - ✓ **Payment:** Through **DBT** via Aadhaar-enabled systems.
- **Incentives for Employers**
  - ✓ **Target:** Creation of 2.6 crore additional jobs, with emphasis on manufacturing.
  - ✓ **Eligibility:**
    - Must sustain employment for at least 6 months.

- Must be EPFO-registered.
- Minimum additional hiring: 2–5 workers depending on establishment size.
- ✓ **Incentives:**
  - Up to ₹3000 per month per employee for 2 years.
  - For the manufacturing sector: extended to 3rd and 4th years.
- ✓ **Slab Structure:**
  - ₹1000 (wages ≤ ₹10,000).
  - ₹2000 (₹10,001–20,000).
  - ₹3000 (₹20,001–1,00,000).
- ✓ **Payment:** Through **DBT** to PAN-linked employer accounts.

## 6. Multi-Stakeholder Execution Framework

- **Key Agencies:**
  - ✓ **Government ministries:** Labour, Skill Development, Economic Affairs, Finance.
  - ✓ **Institutions:** EPFO, UIDAI, NIC, NPCI, CAG.
  - ✓ **Industry:** Employers, industry associations.
  - ✓ **Technology partners:** For Aadhaar, GST, IT integration.
- **Execution Tools:** Employer/employee **onboarding platforms.**
  - ✓ **Monthly ECR filing** with wage details.
  - ✓ Aadhaar-linked identity checks.
  - ✓ Cross-verification with **GST and IT filings.**
  - ✓ **Real-time dashboards** for monitoring job creation.
  - ✓ **Random audits** and fraud detection mechanisms.

## 7. Challenges and Solutions

- **Potential Leakages:**
  - ✓ **Ghost employees** to claim benefits → Solution: Cross-verification using Aadhaar, PAN, GST, IT filings, biometric checks.
  - ✓ **Salary under-reporting** by employers → Solution: Compare ECR with payslips, bank transfers, IT filings; impose penalties.
  - ✓ **Employee attrition** → Solution: Encourage employer-led retention programmes.
  - ✓ **DBT failures** → Solution: Strong Aadhaar-NPCI-bank integration.
  - ✓ **Low awareness** → Solution: Outreach via labour offices, MSME networks, social media.
  - ✓ **Weak training delivery** → Solution: Partner with MSDE, CSCs, NGOs for financial literacy and skilling.
  - ✓ **Monitoring risks** with a large budget → Solution: AI/ML-driven fraud detection, third-party audits.

## 8. Expected Outcomes

- **Creation of 3.5 crore jobs in 2 years.**
- **Formalisation of workforce** through EPFO-linked jobs.
- **Social security expansion** across sectors.
- **Special boost to manufacturing sector employment.**
- **Enhanced financial literacy and retention** among first-time employees.

- **Strengthened industry–government partnership** in employment generation.

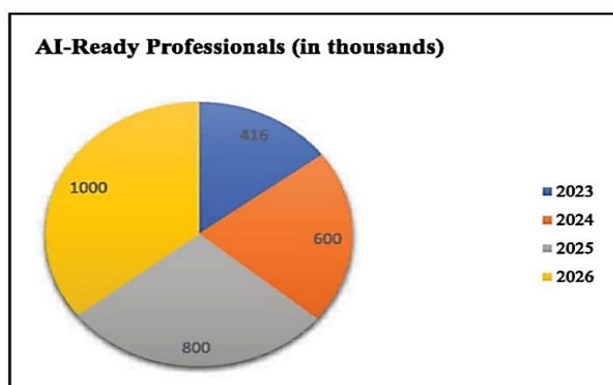
## 9. Concluding Remarks

- **The ELI scheme** represents a **paradigm shift** from skilling-only programmes to **employment-linked incentives.**
- It bridges the **gap between skill development and actual job creation.**
- With strong monitoring, transparent systems, and wide outreach, it can become a **gamechanger in India's employment landscape.**
- If implemented effectively, it will not just create jobs but also ensure **formalisation, social security, and long-term economic resilience** for Bharat.

## AI-ENABLED DIGITAL SKILLING FOR RURAL INDIA

### Introduction: Rural India at a Pivotal Juncture

- **Context:**
  - ✓ Rural India is witnessing the intersection of **demographic potential, economic aspirations, and rapid technological change.**
  - ✓ Improvements in infrastructure and connectivity exist, but **challenges remain:**
    - Limited skill development.
    - Fragmented social protection systems.
    - Economic vulnerability of the rural workforce.
- **Limitations of Conventional Skilling:**
  - ✓ Often **mismatched with market needs.**
  - ✓ Do not align with **local capabilities.**
  - ✓ Fail to connect rural youth with **emerging job sectors.**
- **Impact on Lives:**
  - ✓ **Example:** Asha, a 22-year-old from West Bengal, transformed through a **government-backed AI skilling program.**
    - Learned AI basics and online business skills.
    - Started an online handicraft store with stable income.
    - Enrolled in **health and pension schemes** for social security.
  - ✓ Demonstrates how **AI-driven skills create livelihoods, dignity, and empowerment.**



## The Rise of Digital Inclusion and Social Security

- **Growth in Coverage:**
  - ✓ Social security coverage grew from **19% in 2015 to 64% in 2025 (PIB, 2025)**.
  - ✓ **Enabled by:**
    - **Aadhaar** digital identity system.
    - **Direct Benefit Transfer (DBT)** reaching rural areas.
- **Digital Connectivity:**
  - ✓ Nearly **half of all internet users** in India now live in rural regions.
  - ✓ Expanding ground for **AI-enabled digital skills**, especially for **youth and women**.
- **Government Push:**
  - ✓ **The Ministry of Skill Development & Entrepreneurship (MSDE)** leads initiatives.
  - ✓ **Skill India Digital Hub** – personalised AI-powered education in regional languages.
  - ✓ Supported by **Digital India** and **BharatNet** connectivity projects.
- **Employment Impact:**
  - ✓ After skilling drives, employment rose in:
    - **Manufacturing: +15%**.
    - **Services: +20%**.
    - **Construction: +25%**.
  - ✓ **AI-ready workforce growth:** 416,000 (2023) → nearly **1 million (2026 projection)**.

## Linkage Between Skills, Empowerment, and Social Security

- **Skills as Empowerment:**
  - ✓ AI skills expand opportunities beyond **traditional agriculture/informal work**.
  - ✓ Enable:
    - **Formal jobs.**
    - **Self-employment.**
    - **Entrepreneurship.**
  - ✓ Provide **steady income and dignity**.
- **Social Security Access:**
  - ✓ Formal employment brings **insurance, pensions, worker rights**.
  - ✓ Digital skills allow rural workers to enrol in schemes like:
    - **Pradhan Mantri Jan Dhan Yojana (PMJDY)** – financial inclusion.
    - **Atal Pension Yojana (APY)** – retirement security.
    - **e-Shram portal** – protection for unorganised workers.
- **Transforming Vulnerability into Resilience:**
  - ✓ Digital literacy enables:
    - Online access to government services.
    - Faster applications for benefits.
    - Community-driven **AI innovations** (e.g., local problem-solving).
- **Policy Synergy:**
  - ✓ **Skill-building + social security integration**.
  - ✓ Ensures workers are **employable and protected**.

- ✓ Aligns skilling with **emerging industry demands**.

## Government Initiatives Driving Change:

- **Skill India Mission:**
  - ✓ Over a **decade of skilling efforts**.
  - ✓ Includes **PMKVY 4.0 (2022–2025)** focusing on:
    - AI, cybersecurity, digital marketing.
    - Free training + monetary awards linked to certifications.
  - ✓ Integrated with **NAPS** (apprenticeships) and **Jan Shikshan Sansthan (JSS)**.
  - ✓ **2.27 crore beneficiaries**, largely rural and marginalised.



- **SOAR (Skilling for AI Readiness):**
  - ✓ Focused on **school students (Classes 6–12)** and teachers.
  - ✓ Covers AI basics, ethics, cybersecurity, career guidance.
  - ✓ Aims for **equitable AI education access**.
- **KaushalVerse Digital Portal (NCVT):**
  - ✓ Enhances **skill certification and regulation** transparency.
- **Public-Private Partnerships:**
  - ✓ Collaboration with firms like **Microsoft** for AI skilling programs.
  - ✓ Special focus on **women entrepreneurs**.
- **Indian Institutes of Skills (IIS):**
  - ✓ Specialised **Industry 4.0 training institutes**.
  - ✓ Supported through **CSR-funded projects** under National Skill Development Fund.
- **Draft National Policy on Skill Development & Entrepreneurship 2025:**
  - ✓ Envisions **future-ready workforce**.
  - ✓ Strong emphasis on **equity for rural and marginalised groups**.

## Bridging the Digital Divide Through AI Skilling

- **Current Digital Literacy Gaps:**
  - ✓ Only **25% of rural households are digitally literate** vs. 61% urban (ideasforindia.in).
  - ✓ Risk of rural exclusion from the AI-driven economy.
- **Existing Programs:**
  - ✓ **PMGDISHA:** 6.39 crore trained (by March 2024).
  - ✓ **CSCs (5.6 lakh centres):** hubs for AI-enabled training under **India AI Mission**.
- **State-Level Initiatives:**
  - ✓ **Example: AI Pragma (Uttar Pradesh)** – aims to train **10 lakh citizens** in AI, ML, data analytics.
- **Opportunity Gap:**
  - ✓ Google.org-ADB report: only **1 in 5 Indian youth** exposed to AI skills.
  - ✓ Highlights **need for rapid scale-up**.

## Women at the Forefront of Digital Empowerment

- **Digital Gender Gap:**
  - ✓ Women in rural India:
    - **11% less likely** to own smartphones.
    - **40% less likely** to use mobile internet (GSMA, 2023).
- **AI Skilling for Women:**
  - ✓ Moves women from **wage-based roles to entrepreneurship**.
  - ✓ Domains: AI-enabled agriculture, online retail, digital services.
  - ✓ Closing the gender gap could add **\$700 bn to GDP by 2025 (McKinsey)**.
- **Impactful Programs:**
  - ✓ **PMGDISHA & CSCs** training women in AI and digital services.
  - ✓ Women-led CSCs now deliver **telemedicine, AI-based agri-advisories, and fintech services**.
- **Breaking Barriers:**
  - ✓ AI-based **language learning tools** overcome literacy gaps.
  - ✓ Cloud platforms enable **remote e-commerce businesses**.

- **Case Example: Jharkhand**
  - ✓ Women trained under **AI Pragma** developed **low-cost AI crop disease detection models**.
  - ✓ **Benefits:** new income streams + enhanced food security.

## AI-Driven Agriculture Advisory Systems

- **Livelihood Security through AI:**
  - ✓ Platforms give **location-specific crop advice, pest control, climate adaptation**.
  - ✓ Act as **informal social protection** by stabilising farmer incomes.
- **Examples:**
  - ✓ **Digital Green's AI Chatbot**.
  - ✓ **Krishi AI** (NITI Aayog).
  - ✓ Provide **low-data, voice-enabled advisories** in local languages.
- **Impact:**
  - ✓ Predicts pest infestations weeks ahead.
  - ✓ Reduces crop loss by **up to 30% (World Bank, 2024)**.
  - ✓ Reduces middlemen dependence; boosts direct access to **e-NAM and digital markets**.

## Conclusion

- **Beyond Technical Skills:**
  - ✓ AI-enabled digital skilling = **social transformation**.
  - ✓ Provides **financial stability, bargaining power, and resilience**.
- **Future Priorities:**
  - ✓ Affordable rural internet.
  - ✓ Local language AI tools.
  - ✓ Inclusive policy frameworks.
- **Partnerships Needed:** Government, private sector, and civil society must collaborate.
- **Vision for Rural India**
  - ✓ Every rural youth like Asha can become a **leader, innovator, and entrepreneur**.

True success of AI skilling will be measured in **lives uplifted**, not algorithms created.

# ARTICLES FROM DOWN TO EARTH (SEPTEMBER 2025)

## CLIMATE CHANGE AND THE RISING GLOBAL BURDEN OF DENGUE

### Context

A recent study published in the Proceedings of the National Academy of Sciences (PNAS, 2025) has provided direct evidence linking **climate change** to the **global surge in dengue infections**. The findings highlight how **rising temperatures** and **altered rainfall patterns** are reshaping the geography and intensity of mosquito-borne diseases, especially across Asia and the Americas.

### Key Findings of the Study

- **Magnitude of Impact:** Climate change was responsible for around **18% of dengue cases** in 21 countries between 1995–2014, leading to **4.6 million additional annual infections**.
- **Projected Risks:** By **2050**, dengue incidence may **increase by 49–76%**, potentially **doubling** in many cooler regions now home to **over 260 million people**.
- **Geographic Spread:** Expansion is expected across **Southeast Asia, South America, and sub-Saharan Africa**, as well as emerging cases in **temperate regions** such as **southern U.S. and Europe**.
- **Temperature Effect** Dengue transmission peaks around **27.8°C**, a “**Goldilocks zone**” where mosquito survival and virus replication are optimal. Even slight warming in cooler regions increases transmission rates sharply.
- **Data Basis:** The analysis covered **1.4 million local dengue observations** from 21 nations, showing a clear correlation between temperature rise and disease spread.

### Scientific and Health Implications

- The **Aedes aegypti** mosquito thrives in warmer and humid environments; climate change extends its breeding range to **non-endemic and higher-altitude areas**.
- **Urbanisation and migration**, combined with **virus evolution**, further accelerate the spread.
- According to **WHO (2024)**, dengue cases have increased **eightfold between 2000 and 2022**, with **Asia accounting for 70%** of the global burden.
- **IPCC AR6 (2023)** similarly warned that vector-borne diseases like dengue and malaria will become **major climate-sensitive health challenges**, particularly in tropical developing countries.

### Global Health Concerns

- Dengue is one of the **fastest-spreading vector-borne diseases**, currently endemic in **over 100 countries**.

- New local cases in **Europe and the U.S.** signal a **northward shift** in disease ecology due to climate warming.
- Climate change affects **vector lifespan, biting rate, and virus incubation period**, creating **longer transmission seasons**.

### Mitigation and Adaptation Strategies

- **Aggressive Climate Action:** Reducing greenhouse gas emissions is crucial to limit temperature rise within safe limits.
- **Public Health Preparedness:** Strengthening **vector surveillance, early warning systems, and urban sanitation** to curb mosquito breeding.
- **Vaccination and Medical Advances:** WHO-approved vaccines (e.g., **Dengvaxia, Qdenga**) and research on next-generation vaccines offer new tools.
- **Community-Level Interventions:** Use of **Wolbachia-infected mosquitoes, biological larvicides, and awareness campaigns** to reduce transmission risk.

### Analytical Perspective

The study underscores that **climate change is not just an environmental issue but a public health emergency**. The findings reveal a **direct and quantifiable link** between global warming and infectious disease spread. For developing nations like India, where **data gaps** and **poor health infrastructure** exist, the challenge is even greater. Effective climate adaptation strategies must integrate **health system resilience, urban planning, and climate policy coordination**.

### Conclusion

The evidence confirms that **global warming is accelerating dengue transmission**, leading to millions of additional cases annually. Unless climate mitigation and public health interventions are scaled up, **vector-borne diseases could become a dominant threat to global health security** in the coming decades. Climate resilience must therefore include **mosquito control, vaccination, and emission reduction**, aligning environmental sustainability with human health protection.

## AI-BASED RETINAL IMAGING: A NEW FRONTIER IN PREDICTIVE HEALTHCARE

### Introduction

Artificial Intelligence (AI)-driven retinal imaging is transforming diagnostic medicine by offering a **non-invasive, cost-**

**effective, and accurate tool** to detect systemic diseases such as **diabetes, hypertension, heart disease, kidney disorders, and neurodegenerative diseases**. The retina's microvascular structure serves as a **mirror of the body's vascular health**, allowing doctors to identify early pathological changes that reflect broader systemic conditions.

### 1. The Diagnostic Potential of the Retina

The retina provides a unique view of the body's blood vessels and nerves.

- Narrowing of **retinal arterioles** indicates a long-term risk of **hypertension**.
- Enlargement of **retinal veins** correlates with **kidney complications** in diabetic patients.
- The **arteriolar-to-venular diameter ratio** is a recognized **biomarker** for **stroke and cardiovascular disease** (supported by The Lancet Global Health, 2023).

Thus, retinal imaging acts as a “**vascular biomarker**”, helping predict diseases before symptoms appear.

### 2. Technological Advances in Retinal Imaging

Modern imaging techniques have enhanced retinal diagnostics:

- **Fundus Photography** captures detailed images of the retina, optic nerve, and macula, enabling detection of **diabetic retinopathy, macular degeneration, and glaucoma**.
- **Optical Coherence Tomography–Angiography (OCT-A)** allows a **three-dimensional, non-invasive view** of retinal microvasculature.
- **Adaptive Optics** offers microscopic-level visualization of retinal cells.

These tools, when combined with **AI algorithms**, allow automatic analysis of retinal features, improving diagnostic speed and precision.

### 3. The Rise of “Oculomics”

A new interdisciplinary field called “**oculomics**” uses retinal image datasets and AI to uncover links between ocular biomarkers and systemic health. Machine learning models trained on large image datasets can detect subtle vascular changes associated with **diabetes, cardiovascular disease, and kidney dysfunction**, thereby shifting ophthalmology from **reactive to predictive care**.

### 4. Applications of AI in Ophthalmology

- **Predicting Surgical Outcomes**  
AI is being used to improve surgical precision in **macular hole surgeries**. By analyzing pre- and post-operative images, AI can predict whether the macular hole will close successfully, helping surgeons plan and counsel patients better.
- **Non-invasive Diabetes Screening**  
A **major** innovation involves using **retinal scans to predict blood sugar levels (HbA1c)** without blood tests.

- ✓ The AI model can classify HbA1c levels into **normal, elevated, or high-risk categories**.
- ✓ This is **particularly** relevant for **India**, which has over **100 million diabetics** (IDF, 2023) and limited access to laboratory testing in rural areas.
- ✓ Such **models** could enable **mass screenings**, improving early detection and reducing healthcare costs.

- **Unified Disease Classification**

Using **Auxiliary Classifier Generative Adversarial Networks (AC-GANs)**, **researchers** aim to create a unified framework that can classify **multiple diseases**—eye-related or systemic—from a single retinal image. This can transform one retinal scan into a **comprehensive health assessment tool**.

### 5. Advantages and Public Health Implications

- **Early Detection:** Allows timely intervention in chronic diseases.
- **Non-Invasive and Scalable:** No **blood** draw needed; suitable for community screening.
- **Cost-Effective:** Ideal for resource-limited countries like India.
- **Precision Medicine:** Enables **personalized** care using predictive analytics.

According to the **ICMR-National Diabetes & Diabetic Retinopathy Survey (2019)**, 16% of diabetics in India remain undiagnosed until complications arise. AI-based retinal screening can bridge this gap by integrating ophthalmic and systemic disease detection.

### 6. Challenges and Ethical Considerations

- **Data Diversity:** Models require diverse, representative datasets for **accuracy**.
- **Black Box Problem:** AI decisions are often opaque, making clinical validation **essential**.
- **Privacy and Ethics:** Patient data must remain anonymous and **secure**.

To address these, **researchers** are sharing anonymized data across hospitals and improving algorithm transparency using **explainable AI (XAI)** models.

### Conclusion

AI-based retinal imaging represents a **paradigm shift in preventive and predictive healthcare**. By converting a simple eye scan into a **comprehensive diagnostic tool**, it has the potential to revolutionize mass screening for chronic diseases, particularly in low-resource settings.

With ongoing research collaborations—such as those between **BML Munjal University** and **Sankara Nethralaya**—India is positioning itself at the forefront of **AI-driven oculomics**, bridging the gap between vision science and systemic health diagnostics.

## EMPLOYER SOCIAL SECURITY BENEFITS AND JOB RETENTION IN INDIA: POLICY IMPLICATIONS FOR ECONOMIC GROWTH

### Context

It is a quantitative analysis of the causal impact of employer social security benefits on job retention among salaried Indian workers, using the LASI 2017-18 dataset. The study's key finding is that these benefits significantly increase job tenure, with a disproportionately stabilizing effect on the female workforce. The policy implication is that enhancing these benefits is a crucial, targeted strategy for achieving economic growth and ensuring labor market equity.

### Introduction:

Employee turnover is a major challenge for macroeconomic stability, leading to increased unemployment and reduced productivity, which slows economic growth. For India, which aims to achieve a \$10 trillion economy by 2030, stabilizing the workforce is critical. This objective is directly hindered by the pervasive issue of employee retention and the documented deficiencies in India's employer social security benefits system.

Employer social security benefits including pensions, provident funds, health insurance, and maternity/paternity benefits are vital tools. They provide a financial safety net, reduce uncertainty, and enhance job satisfaction, serving as powerful mechanisms not only to attract talent but, more importantly, to retain it.

### Key Research Methodology and Data

The analysis utilizes a quantitative approach to establish a **causal relationship** between receiving employer social security benefits and job retention among salaried workers in the Indian labor market.

### Data Source

The study relies on **cross-sectional microdata** from the nationally representative **Longitudinal Ageing Study in India (LASI), 2017-18 (Main Wave I)**. The sample focuses specifically on currently working, non-self-employed, and salaried individuals.

### Measuring Retention

Job retention is measured using two key proxy variables:

- Job Tenure:** The total duration of employment in the current job (in years).
- Job Seeking Status:** A dummy variable indicating whether the respondent is actively looking for another job.

### Analytical Technique: Propensity Score Matching (PSM)

To overcome the inherent **self-selection bias** in observational data (where individuals with better characteristics, like higher education, might be more likely to receive benefits), the study employs the **Propensity Score Matching (PSM)** technique.

- Objective:** PSM creates a comparable control group (non-recipients) for the treatment group (recipients) by **matching** individuals based on similar pre-treatment socio-economic characteristics (age, education, MPCE, occupation type, etc.).
- Significance:** This quasi-experimental method allows the **researcher** to estimate the **Average Treatment Effect on the Treated (ATT)**, isolating the causal effect of receiving benefits on job retention.

### Major Findings and Policy-Relevant Outcomes

The PSM analysis provides statistically significant evidence confirming the positive causal impact of employer benefits on workforce stability.

#### 1. Overall Impact on Retention

The study confirms that receiving employer social security benefits significantly increases job retention:

- **Job Tenure:** Benefits are associated with an increase of approximately **2.6 years** in job tenure for the recipient employee.
- **Job Seeking:** Benefits reduce the overall likelihood of an employee actively seeking a new job by **2.8%**.

#### 2. Pronounced Gender Disparity in Impact

Perhaps the most crucial finding for policy is the substantial difference in impact observed between genders:

Impact of Receiving Employer Benefits (ATT)	Male Employees	Female Employees
Increase in Job Tenure	Around 1.2 years	Around 3.9 years
Reduction in Job Seeking	Approx 3.0%	Approx 4.2%

**Analysis:** The much larger impact observed for women suggests that the female labour force derives **substantially more job stability** from these benefits. This may be due to women placing a higher value on or having a greater dependency on the security offered by benefits (like health coverage or maternity leave) due to differing levels of job market attachment or societal roles. This reliance translates into greater job commitment and lower turnover intentions.

### Policy Recommendations for Labour Market Reform

The findings underscore the need for targeted policy intervention to leverage social security benefits as a tool for economic growth and equitable development.

### 1. Strategic Enhancement of Benefits Programmes

- ✓ **Regular Evaluation:** Policy schemes must be regularly evaluated and enhanced to keep pace with the evolving needs of the workforce.
- ✓ **Digital Transparency:** The government should strengthen the regulatory framework for benefits (like ESI and EPF) through **digital tracking systems** to prevent fraud and ensure transparency in coverage and delivery.

### 2. Addressing Gender Disparities

- ✓ **Targeted Benefits:** Policymakers must recognize the high value women place on these safety nets and **structure** or enhance benefits schemes to specifically support female employees.
- ✓ **Retention of Female Workforce:** Given the low female labour force participation rate in India, using enhanced, security-focused employer benefits can be a key **strategy** to ensure that women who join the workforce remain employed, thereby boosting overall economic output and achieving more **equitable labour market outcomes**.

### 3. Focus on Quality of Employment

- ✓ The government must ensure that benefits are not just provided but are comprehensive, particularly for low-wage and informal sector workers, as inadequate social security coverage remains a major concern in India.

### Conclusion

The research provides compelling quantitative evidence that employer social security benefits are a powerful determinant of employee retention in India, particularly stabilizing the female workforce. As India moves toward its high-growth targets, an integrated policy approach that strengthens, transparently delivers, and strategically targets this essential social security provisions will be crucial for fostering a stable, productive, and equitable labour market.

## THE SMART CITIES MISSION (SCM) IN INDIA

### Context

The Smart Cities Mission (SCM), launched on **June 25, 2015**, is a flagship urban renewal and retrofitting program of the **Ministry of Housing and Urban Affairs (MoHUA)**, Government of India. It is crucial for UPSC General Studies Papers I (Urbanisation), II (Government Schemes), and III (Economy/Infrastructure).

### 1. Core Concept and Objectives

The mission aimed to develop **100 selected cities** across the country, making them citizen-friendly and sustainable.

Feature	Description for UPSC
Pillars	<b>Social, Physical, Institutional, and Economic Infrastructure.</b>

<b>Objectives</b>	1. <b>Core Infrastructure</b> (water, electricity, sanitation) and <b>Decent Quality of Life</b> . 2. <b>Clean and Sustainable Environment</b> . 3. Application of ' <b>Smart Solutions</b> (ICT). 4. Creating a <b>Replicable Model</b> that can have a "rub-off effect" on other parts of the city and nearby towns.
<b>Selection</b>	Through the ' <b>Smart Cities Challenge</b> ', a competition-based method. This emphasized <b>Competitive and Cooperative Federalism</b> .
<b>Scheme Type</b>	<b>Centrally Sponsored Scheme (CSS)</b> .
<b>Nodal Ministry</b>	<b>Ministry of Housing and Urban Affairs (MoHUA)</b> . (Initially Ministry of Urban Development).

### 2. Implementation Model

The SCM adopted a **focused approach** by selecting specific areas within cities for comprehensive development, known as **Area-Based Development (ABD)**, along with a **Pan-City Solution** for ICT integration.

Model	Description	Example /Relevance
<b>Retrofitting</b>	Upgrading infrastructure in an <b>existing area</b> (e.g., 500 acres) to make it more efficient and sustainable.	Upgrading traffic management systems and water/sewage networks.
<b>Redevelopment</b>	<b>Replacing old infrastructure</b> with modern facilities and innovative designs in an existing area.	Replacing old buildings and networks with modern, planned ones (e.g., Bhendi Bazar, Mumbai).
<b>Greenfield Projects</b>	Developing <b>entirely new urban areas</b> (e.g., 250 acres) with a focus on sustainability and smart technologies from scratch.	Building new urban extensions (e.g., GIFT City, New Town Kolkata).
<b>Pan-City Solutions</b>	Implementing <b>Information and Communication Technology (ICT) solutions</b> across various sectors city-wide.	Setting up <b>Integrated Command and Control Centres (ICCCs)</b> .

### 3. Governance, Finance, and Status

#### 3.1 Governance Structure

- **Special Purpose Vehicle (SPV):** A company was registered under the Companies Act, 2013, for each Smart City to **implement** the projects.

- **Deviation from 74th CAA:** The SPV model, led by a bureaucrat or MNC representative, centralized decision-making, which critics argue **reduced the role and financial autonomy of the democratically elected Urban Local Body (ULB)** and the elected council, raising concerns about **democratic accountability** and alignment with the **74th Constitutional Amendment Act (CAA), 1992**.

### 3.2 Financial Model

- **Funding Pattern:** 50:50 funding model between the **Central Government** and the **State Government/ULB**.
- **Financing Sources (Value Addition):** Cities are encouraged to raise additional funds through:
  - ✓ **Convergence** with other Central and State schemes (e.g., AMRUT, PMAY-U).
  - ✓ **Public-Private Partnerships (PPP)**, which accounts for a significant share of the total funding.
  - ✓ **Municipal Bonds** and loans from financial institutions.
  - ✓ **Own Revenue Generation** (e.g., Property Tax reforms, User Charges, and Land Monetization/Value Capture Financing (VCF)).

### 3.3 Latest Status and Deadline

- **Initial Deadline: 2020.**
- **Final Extended Deadline: March 31, 2025.**
- **Progress (Value Addition):** As of late 2024, **over 90%** of the total **tendered** projects have been completed, demonstrating significant progress in implementation. Key achievements include the operationalization of **Integrated Command and Control Centres (ICCCs)** in all 100 cities, which were successfully used as '**war rooms**' during the COVID-19 pandemic.

## 4. Critical Assessment: Challenges & Way Forward

The article highlights that despite notable progress in urban transport and smart water supply, **inadequate financial matching** by state governments and **sluggish work progress** have been "grey areas". The following challenges are crucial for a Mains answer:

Challenge (Critique)	UPSC Relevance/Impact
<b>Flawed Selection and Exclusionary Approach</b>	The competition-based selection overlooked diverse urban realities. The focus on <b>Area-Based Development (ABD)</b> , covering only 3-5% of a city's area, is criticized as <b>exclusionary</b> , neglecting the vast majority of the urban population.
<b>Inadequate Funding</b>	The total allocated funding for the mission is a tiny fraction of the estimated <b>\$1.2 trillion</b> required to improve livability in Indian cities by 2030 (as per McKinsey). This highlights a <b>severe urban infrastructure financing gap</b> .
<b>Weak ULB Capacity and</b>	<b>Lack of technical and administrative capacity</b> in Urban Local Bodies (ULBs) for

<b>Governance Model</b>	efficient implementation and maintenance. The SPV model, bypassing the ULB's elected wing, undermines <b>local self-governance</b> .
<b>Project Delays and Cost Overruns</b>	Despite extensions, many cities experienced delays, indicating the complexity of urban development and execution challenges.
<b>Urban Commons and Social Impact</b>	Projects have sometimes led to the displacement of the urban poor and disruption of urban commons, impacting <b>inclusive development</b> . Infrastructure disruption can also lead to issues like <b>increased urban flooding</b> .

**Way Forward :** To build "inclusive, future-ready cities", future urban missions must adopt the following reforms, also backed by various expert reports and Finance Commission recommendations:

#### 1. Strengthening Urban Local Bodies (ULBs):

- ✓ **Capacity Building:** Invest in training municipal staff, especially in planning, revenue, and finance functions.
- ✓ **Administrative Autonomy:** Align the governance model with the **74th CAA** to empower elected councils and administrative wings of ULBs.

#### 2. Municipal Finance Reforms (The Missing Piece):

- ✓ **Property Tax:** Implement reforms like the **Unit Area Valuation (UAV)** method and use technology (GIS) for accurate enumeration, and rationalize exemptions.
- ✓ **User Charges:** Ensure better cost recovery for municipal services (water, sanitation) through effective user charges to promote financial sustainability.
- ✓ **Municipal Bonds:** Develop the municipal bond market and enhance the creditworthiness of ULBs to access repayable finance.
- ✓ **Inter-Governmental Transfers (IGTs):** The **Finance Commission** must increase the share of untied grants to ULBs and ensure constitutional provisions for revenue sharing, especially from GST, for all three levels of government.

#### 3. Sustainable and Inclusive Planning:

- ✓ Focus on **pan-city infrastructure** and services rather than restricting development to small, compact ABD areas to ensure equitable benefits for all citizens, including the urban poor. Greater integration of **green infrastructure** and **climate resilience** is essential.

This mission's journey highlights that the challenge is not merely about installing technology, but fundamentally about **reforming urban governance and municipal finance** to make India's cities truly resilient and inclusive **engines of economic growth**.

# QUICK REVISION

## IMPORTANT DAYS IN SEPTEMBER 2025

Date	Day	Significance / Remark / Details
2nd September	World Coconut Day	<ul style="list-style-type: none"> <li>Commemorates the foundation day of International Coconut Community</li> <li>India is a founding member of ICC</li> </ul>
4th September	World Leukaemia Day	<ul style="list-style-type: none"> <li><b>Theme:</b> 'What does leukaemia mean to you?'</li> </ul>
8th September	International Literacy Day	<ul style="list-style-type: none"> <li><b>Theme:</b> "Promoting Literacy in the Digital Era"</li> </ul>
10th September	World Suicide Prevention Day	<ul style="list-style-type: none"> <li>Triennial theme for the period 2024–2026: "Changing the Narrative on Suicide"</li> </ul>
14th September	Hindi Diwas	<ul style="list-style-type: none"> <li>On this day in 1949, the Constituent Assembly adopted Hindi in Devanagari script as India's official language</li> </ul>
16th September	World Ozone Day	<ul style="list-style-type: none"> <li><b>Theme:</b> From science to global action</li> <li>It marked the 40th anniversary of the Vienna Convention for the Protection of the Ozone Layer and commemorated the 1987 signing of the Montreal Protocol to phase out ozone-depleting substances</li> </ul>
17th September	Hyderabad Liberation Day	<ul style="list-style-type: none"> <li>Marks the day when the princely State of Hyderabad merged into the Indian Union on 17 September 1948 after Operation Polo</li> </ul>
23rd September	Sign Language Day	<ul style="list-style-type: none"> <li><b>Theme:</b> "No Human Rights Without Sign Language Rights"</li> </ul>
27th September	World Tourism Day	<ul style="list-style-type: none"> <li><b>Theme:</b> "Tourism and Sustainable Transformation"</li> </ul>

## IMPORTANT EVENTS/SUMMITS/CONFERENCES IN SEPTEMBER 2025

S.N.	Events/Summits/Conference	Details
1.	International Conference on Space	<ul style="list-style-type: none"> <li>Venue: Bengaluru, Karnataka</li> <li><b>Theme:</b> "Harnessing Space for Global Progress: Innovation, Policy, and Growth"</li> <li><b>Organizers:</b> Confederation of Indian Industry (CII)</li> </ul>
2.	India Mobile Congress (IMC) 2025	<ul style="list-style-type: none"> <li><b>Venue:</b> Dwarka, New Delhi</li> <li><b>Theme:</b> "Innovate to Transform"</li> <li><b>Organizer:</b> Department of Telecommunications (DoT) and Cellular Operators Association of India (COAI)</li> </ul>
3.	28th Universal Postal Congress	<ul style="list-style-type: none"> <li><b>Venue:</b> Dubai</li> <li><b>Organizer:</b> Universal Postal Union (UPU)</li> <li>India has been re-elected to the Council of Administration (CA) and the Postal Operations Council (POC) of UPU</li> </ul>
4.	World Food India - 4th Edition	<ul style="list-style-type: none"> <li><b>Venue:</b> New Delhi</li> <li><b>Organizer:</b> Ministry of Food Processing Industries (MoFPI)</li> <li><b>Tagline:</b> Processing for Prosperity</li> </ul>
5.	2nd Global Conference on Sustainable Livestock Transformation	<ul style="list-style-type: none"> <li><b>Venue:</b> Rome</li> <li><b>Organizer:</b> Food and Agriculture Organization</li> </ul>
6.	United Nations Peacekeeping Ministerial 2025	<ul style="list-style-type: none"> <li><b>Venue:</b> Berlin, Germany</li> <li>Organized by United Nations</li> <li>Focused on The Future of Peacekeeping</li> </ul>
7.	Coalition of the Willing Summit on Ukraine Security Guarantees	<ul style="list-style-type: none"> <li><b>Venue:</b> Paris, France</li> <li><b>Co-chairs:</b> France and Britain</li> <li>26 nations pledged to provide postwar security guarantees to Ukraine, including an international force on land, sea, and air</li> </ul>

## AWARDS AND PRIZES IN SEPTEMBER 2025

S.N.	Award	Awarded to	Details
1.	Srimanta Sankardeva Award	Dr. Sonal Mansingh	<ul style="list-style-type: none"> <li>Renowned Indian classical dancer and cultural icon</li> <li>Recognized for using dance as a medium to promote women's empowerment, environmental awareness, and social justice</li> <li>Awarded by Government of Assam.</li> </ul>
2.	P. V. Narasimha Rao Memorial Award for Economics	Dr. Manmohan Singh (posthumous)	<ul style="list-style-type: none"> <li><b>Awarded by:</b> P. V. Narasimha Rao Memorial Foundation (PVNMF)</li> <li>Recognised for his contributions to India's economic transformation and nation-building</li> </ul>
3.	Holley Medal	Baba Kalyani, Chairman & Managing Director of Bharat Forge.	<ul style="list-style-type: none"> <li>Honoured for his role in engineering-led innovation and public benefit through industrial resilience</li> <li>Awarded by the American Society of Mechanical Engineers (ASME) since 1924</li> <li>Recognises outstanding and unique engineering acts that bring a noteworthy and timely public benefit through a single achievement</li> </ul>
4.	Living Bridge Awards	British PM Keir Starmer	<ul style="list-style-type: none"> <li>The Living Bridge Awards are organised annually by the India Business Group (IBG)</li> <li>The awards celebrate individuals and organisations</li> </ul>

			strengthening the India-UK partnership
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## TEAMS IN NEWS IN SEPTEMBER 2025

S.N.	Terms	Meaning & Details
1.	Disinformation weaponization	<ul style="list-style-type: none"> <li>The idea that false or misleading information is being used as a tool or weapon to manipulate public opinion or politics</li> </ul>
2.	Government shutdown	<ul style="list-style-type: none"> <li>The U.S. federal government ceasing noncritical operations due to lack of approved funding</li> </ul>
3.	Azure disruptions	<ul style="list-style-type: none"> <li>Microsoft Azure suffered service disruption due to cuts to undersea cables in the Red Sea</li> </ul>
4.	Bloquons tout	<ul style="list-style-type: none"> <li><b>French meaning</b> - Block everything</li> <li>In France, on 10 September 2025, protests and strikes erupted against austerity measures</li> </ul>

## OBITUARIES IN SEPTEMBER 2025

S.N.	Person	Important Information
1.	Zubeen Garg	<ul style="list-style-type: none"> <li>Celebrated Assamese singer, composer, lyricist, actor, and cultural icon</li> </ul>
2.	S.L. Bhyrappa	<ul style="list-style-type: none"> <li>Renowned Kannada writer</li> <li>Conferred with the Padma Bhushan in 2023, the Saraswati Samman in 2010, and the Sahitya Akademi Fellowship in 2015</li> </ul>
3.	D. D. Lapang	<ul style="list-style-type: none"> <li>Veteran leader and former CM of Meghalaya, passed away on Friday night (13 September 2025) in Shillong at the age of 91</li> <li>He served as CM of Meghalaya four times (1992–2008)</li> <li>Known for consensus leadership and humility</li> </ul>

### DAILY MCQS PRACTICE

**Que 1. Which of the following statements are correct in respect of the National Legal Services Authority (NALSA):**

1. NALSA was constituted under the Legal Services Authorities Act, 1987.
2. The Chief Justice of India is the Patron-in-Chief of NALSA.
3. NALSA provides free legal aid to all citizens, irrespective of income or category.

**Select the answer using the code given below:**

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

**Que 2. Consider the following with reference to:**

1. EPIC is issued by the Election Commission of India to all eligible voters.
2. Possession of EPIC is mandatory for voting in elections.
3. EPIC serves as both identity proof and address proof for Indian citizens.

**How many of the above is/are correct?**

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

**Que 3. Consider the following statements with reference to Articles of Indian Constitution:**

1. Article 74 of the constitution deal with the Union Council of Ministers.
2. Article 165 of the Constitution deal with the Council of Ministers in the states.
3. Article 239A of the Constitution deal with the Ministers in Union Territories.

**Which of the above statements is/are incorrect?**

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

**Que 4. Consider the following statements with reference to Yarlung Tsangpo:**

1. The Yarlung Tsangpo hydropower project is set to be the world's largest hydropower project.
2. Neither India nor China is a signatory to the 1997 UN Convention on the Law of the Non-Navigational Uses of International Watercourses.

**Which of the statements given above is/are correct?**

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

**Que 5. Which of the following statements are correct in respect of Prevention of Money Laundering Act (PMLA), 2002:**

1. The PMLA aims to prevent money laundering and provides for confiscation of property derived from proceeds of crime.
2. It applies only to financial institutions, and individuals cannot be prosecuted under this Act.
3. Attachment and adjudication of properties suspected to be involved in money laundering are key provisions of the Act.

**Select the answer using the code given below:**

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

**Que 6. Consider the following with reference to Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989:**

1. The SC/ST Act provides special legal protection to members of Scheduled Castes and Scheduled Tribes against atrocities and discrimination.
2. The Act allows for immediate arrest of the accused without prior approval from a higher authority in cases of atrocities.
3. The Act includes provisions for reservation in public employment and educational institutions.

**How many of the above is/are correct?**

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

**Que 7. Consider the following statements with reference to Aravalli Range:**

1. Guru Shikhar, the highest peak is in the Arbuda Mountains of Rajasthan.
2. Banas, Sahibi and Luni rivers flow from Aravalli.
3. The Northern Aravalli range in Delhi and Haryana has humid subtropical climate and hot semi-arid continental climate.

**Which of the above statements is/are correct?**

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

**Que 8. The Northern Sea Route (NSR) passes through which strait in the east?**

- (a) Malacca Strait
- (b) Bering Strait
- (c) Strait of Gibraltar
- (d) Hormuz Strait

**Que 9. Which of the following statements are correct in respect of GST Council?**

1. The GST Council is chaired by the Union Finance Minister.
2. The Council makes recommendations on tax rates, exemptions, and threshold limits under GST.

3. Every decision of the GST Council requires unanimity of all members.

**Select the answer using the code given below:**

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

**Que 10. Consider the following statements:**

**Statement I:** FDI is an investment made by a company or individual in one country into business interests located in another country.

**Statement II:** FDI brings capital, technology transfer, and managerial expertise into the host country.

**Statement III:** FDI always results in 100% ownership of companies in the host country by foreign investors.

**Which one of the following is correct in respect of the above statements?**

- (a) Both Statement II and Statement III are correct and both of them explain Statement I
- (b) Both Statement II and Statement III are correct but only one of them explains Statement
- (c) Only one of the Statements II and III is correct and that explains Statement I
- (d) Neither Statement II nor Statement III is correct

**Que 11. Consider the following statements with reference to the "FutureSkills Prime" initiative**

- 1. It is a government recruitment portal developed by NASSCOM and the Ministry of Skill Development.
- 2. It is an aggregator learning platform which offers globally accepted courses in digital technologies.
- 3. NASSCOM, in collaboration with MeitY, is spearheading this initiative to bridge the digital skill gap in India.

**Which of the above statements is/are correct?**

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

**Que 12. Consider the following statements**

**Statement I:** India has become the world's largest per capita data consumer, overtaking China and the USA.

**Statement II:** India leads the world in deep-tech innovations like Web 4.0.

**Select the correct option**

- (a) Both statements are true
- (b) Both statements are false
- (c) Statement 1 is false but Statement 2 is true
- (d) Statement 1 is true but Statement 2 is false

**Que 13. Which of the following statements are correct in respect of "Poshan Bhi Padhai Bhi"?**

- 1. It is an initiative of the Ministry of Women and Child Development.
- 2. It aims to integrate nutrition with cognitive development in early childhood.
- 3. It focuses only on providing mid-day meals to school children.

**Select the answer using the code given below:**

- (a) 1 and 2 only
- (b) 2 and 3 only

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

**Que 14. Consider the following statements:**

**Statement I:** A Constitutional Amendment Bill can be introduced in either House of Parliament.

**Statement II:** It requires the prior approval of the President before being introduced in Parliament.

**Statement III:** It must be passed in each House of Parliament by a majority of the total membership of that House and by a majority of not less than two-thirds of the members present and voting.

**Which one of the following is correct in respect of the above statements?**

- (a) Both Statement II and Statement III are correct and both of them explain Statement I
- (b) Both Statement II and Statement III are correct but only one of them explains Statement
- (c) Only one of the Statements II and III is correct and that explains Statement I
- (d) Neither Statement II nor Statement III is correct

**Que 15. Consider the following statements with reference to the Pacific Decadal Oscillation (PDO):**

- 1. It is a long-term climate pattern affecting sea surface temperatures in the North Pacific over decades.
- 2. It operates on a similar timescale as the El Niño-Southern Oscillation (ENSO).
- 3. PDO influences weather and climate patterns in the Pacific region and beyond.

**Which of the above statements is/are correct?**

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

**Que 16. Which of the following statement about Particularly Vulnerable Tribal Groups (PVTGs) is incorrect?**

- (a) PVTGs are identified as the most vulnerable among Scheduled Tribes, requiring special attention
- (b) The Dhebar Commission recommended the creation of the PVTG category in 1975
- (c) As per the 2011 Census, PVTGs are found in 28 states and 5 Union Territories
- (d) Odisha has the highest number of PVTGs, with a population of over 2.5 lakh

**Que 17. Consider the following statements:**

**Statement I:** SAARC aims to promote regional cooperation and development among South Asian countries.

**Statement II:** SAARC was established in 1985 and its Secretariat is located in Kathmandu, Nepal.

**Statement III:** SAARC has 8 member countries including India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan, Maldives, and Afghanistan.

**Which one of the following is correct in respect of the above statements?**

- (a) Both Statement II and Statement III are correct and both of them explain Statement I
- (b) Both Statement II and Statement III are correct but only one of them explains Statement

(c) Only one of the Statements II and III is correct and that explains Statement I

(d) Neither Statement II nor Statement III is correct

**Que 18. Consider the following with reference to Question Hour in the Indian Parliament:**

1. Question Hour is held at the beginning of each parliamentary sitting.
2. During Question Hour, Members of Parliament can ask questions to hold the government accountable.
3. Supplementary questions can be asked only with prior written permission from the Speaker.

**How many of the above is/are correct?**

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

**Que 19. Consider the following statements**

1. At present, tourism contributes around 5 per cent to India's GDP, compared to the global average of 10 per cent.
2. Tourism in countries like Spain and the UAE, accounts for about 12 per cent of GDP,
3. Improving the inbound share of tourism GDP will not only strengthen our external account but also provide a steady buffer against fluctuations in merchandise trade.

**Which of the above statements is/are correct?**

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

**Que 20. INS Udaygiri, recently in news is:**

- (a) A nuclear-powered submarine under Project 75I
- (b) A multi-mission frigate under Project 17A
- (c) An aircraft carrier built under Project 71
- (d) A coastal surveillance vessel of the Indian Coast Guard

**Que 21. Which of the following statements are correct in respect of NCLAT?**

1. NCLAT hears appeals against orders of the National Company Law Tribunal (NCLT) under the Companies Act, 2013.
2. NCLAT can hear appeals against orders of the Insolvency and Bankruptcy Board of India (IBBI).
3. NCLAT is headquartered in New Delhi.

**Select the answer using the code given below:**

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

**Que 22. Consider the following statements:**

**Statement I:** Article 6 enables countries to cooperate in achieving their Nationally Determined Contributions (NDCs) through market and non-market mechanisms.

**Statement II:** Article 6.2 allows bilateral or multilateral trading of emission reductions between countries, creating carbon markets.

**Statement III:** Article 6.4 establishes a mechanism to generate emission reduction credits for sustainable development, which can be used by countries to meet their NDC targets.

**Which one of the following is correct in respect of the above statements?**

- (a) Both Statement II and Statement III are correct and both of them explain Statement I
- (b) Both Statement II and Statement III are correct but only one of them explains Statement I
- (c) Only one of the Statements II and III is correct and that explains Statement I
- (d) Neither Statement II nor Statement III is correct

**Que 23. Consider the following statements with reference to New World screwworm**

1. Screwworms are a type of blue-grey blowfly.
2. They are found in South America, the Caribbean and also India.
3. The parasites are named after the screw like way they burrow into the tissue.

**Which of the above statements is/are correct?**

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

**Que 24. Consider the following statements with reference to INS Udaygiri and INS Himgiri**

1. They both are Nilgiri-class stealth guided-missile frigates.
2. Both are built by Mazagon Dock Shipbuilders Limited (MDL) in Mumbai.
3. Udaygiri has been named after the mountain range in Andhra Pradesh.

**How many of the above statements is/are correct?**

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

**Que 25. Consider the following statements about FDI in e-commerce:**

**Statement 1:** currently 100% FDI is allowed under the automatic route in marketplace model of e-commerce.

**Statement 2:** Under the marketplace-based model, e-commerce companies are required to own the inventory of goods and service and sell it directly to consumers.

**Statement 3:** Under the inventory-based model of e-commerce, they are allowed to have a digital and electronic network to act as a facilitator between buyer and seller.

**How many of the above statements are correct?**

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

**Que 26. Which of the following is/are correct regarding WTO?**

1. It succeeded to the GATT of 1948 in 1995 as a result of Marrakesh agreement.
2. It covers trade in goods and services but does not include Intellectual Property Rights (IPR).
3. Its structure consists of Ministerial Conference, WTO general council and secretariat.

**Select the correct statements using the codes given below:**

- (a) 1 and 3 only
- (b) 2 only

- (c) 1, 2 and 3
- (d) None of the above

**Que 27. Consider following statements about H1b Visa:**

1. It allows US companies to employ the skilled workers from abroad.
2. China accounts for the largest beneficiaries under this scheme.

**Which of the statements give above is/are correct?**

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

**Que 28. Consider following statements regarding PM SVANidhi scheme:**

1. It aims to provide collateral free loan of upto Rs.10000 to help street vendors resume their businesses after COVID.
2. It is implemented by the Ministry of Food Processing and Industries.

**Which of the statements give above is/are correct?**

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

**Que 29. Which of the following statements are correct in respect of the Insurance Regulatory and Development Authority of India (IRDAI)?**

1. IRDAI was established under the Insurance Regulatory and Development Authority Act, 1999.
2. It is a statutory body responsible for regulating and promoting the insurance and reinsurance industries in India.
3. The headquarters of IRDAI is located in Mumbai, Maharashtra.

**Select the answer using the code given below:**

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

**Q 30. Which of the following is true regarding Prime Minister's Internship Scheme?**

- (a) It is exclusively for foreign students
- (b) It aims to encourage young people to understand policy-making and governance
- (c) It provides a guaranteed job in government after completion
- (d) It only focuses on rural development projects

**Que 31. Consider the following statement regarding the Article 32 of the Indian Constitution:**

1. It aims to protect and enforce the fundamental rights enshrined in Part-III of the constitution.
2. States can file the petition under this article against the decision of Government regarding the bill passed by the State legislature.
3. Article 32 has wider jurisdiction than article 226.

**How many of the above are considered as correct?**

- (a) Only one
- (b) Only two

- (c) All the three
- (d) None

**Que 32. which of the following statements is/are correct?**

1. Bakhtayar Khilji destroyed the famous Nalanda University.
2. King Prithu of Kamrup in Assam was defeated by Bakhtiyar Khilji in 1206 CE.
3. Famous Kanai Barasi Boa rock inscription mentions the Prithu's defeat.

**Select the correct statements using the codes given below:**

- (a) 2 and 3 only
- (b) 1 only
- (c) 1, 2 and 3
- (d) None of the above

**Que 33. Which of the following statements are correct in respect of Brent Crude?**

1. Brent Crude is a major benchmark for oil prices globally.
2. It is primarily extracted from the North Sea between the United Kingdom and Norway.
3. Brent Crude has a higher sulfur content compared to West Texas Intermediate (WTI).

**Select the answer using the code given below:**

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

**Que 34. Consider the following statements:**

**Statement 1:** The Organization of the Petroleum Exporting Countries (OPEC) aims to coordinate and unify petroleum policies among member countries to stabilize oil markets.

**Statement 2:** OPEC was founded in 1960 by Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela to secure fair and stable prices for petroleum producers.

**Which one of the following is correct in respect of the above statements?**

- (a) Both statement 1 and Statement 2 are correct and statement 2 explains statement 1
- (b) Both statement 1 and Statement 2 are correct and statement 2 does not explain statement 1
- (c) Statement 1 is correct, but Statement 2 is incorrect
- (d) Statement 2 is correct, but Statement 1 is incorrect

**Que 35. With reference to Ayushman Bharat – Pradhan Mantri Jan Arogya Yojana (AB-PMJAY), consider the following statements:**

1. It provides a health insurance cover of up to ₹5 lakhs per family per year for secondary and tertiary care hospitalization.
2. It is available only to families identified in the Socio-Economic Caste Census (SECC) 2011 database.
3. The scheme is entirely funded by the Union Government without any contribution from the States.

**Which of the statements given above is/are correct?**

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

**Que 36. With reference to the bail system in India, consider the following statements:**

1. The provisions relating to bail are primarily governed by the Code of Criminal Procedure, 1973.
2. Bail in bailable offences is a matter of right, whereas in non-bailable offences it is subject to the discretion of the court.
3. Bail always requires the accused to deposit cash as a surety amount before release.

**Which of the statements given above is/are correct?**

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

**Que 37. Which of the following statements are correct in respect of Real GDP?**

1. Real GDP measures the total value of goods and services produced in an economy adjusted for inflation.
2. Real GDP reflects changes in production volume, not changes in price level.
3. Real GDP can decrease even if nominal GDP increases, when inflation is high.

**Select the answer using the code given below:**

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

**Que 38. Consider the following with reference to Soli Sorabjee Committee:**

1. The Soli Sorabjee Committee was constituted to examine the issue of media trials and their impact on the administration of justice.
2. It recommended that restrictions should be imposed on the publication of certain details of ongoing criminal trials to prevent prejudicing cases.
3. It suggested that the Right to Information (RTI) Act should be amended to exempt disclosure of judicial proceedings.

**How many of the above is/are correct?**

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

**Que 39. With reference to Blue Dragon, consider the following statements:**

1. It is a type of marine mollusk belonging to the nudibranch group who are found on sea water surface with their blue colored back facing upwards.
2. It can feed on venomous organisms like the Portuguese Man o' War and use their stinging cells for its own defense.
3. Recently they were found in Mediterranean Sea due to the climate change.

**Which of the statements given above is/are correct?**

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

**Que 40. Consider the following statements about the south-west monsoon:**

1. India has received above-normal rainfall for period ranging from June- August 2025.
2. Above normal rainfall is defined as the rainfall recorded from 96% to 104% of the Long-term average.

**Which of the statements given above is/are correct?**

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

**Que 41. Which of the following statements are correct in respect of National Ambient Air Quality Standards (NAAQS)?**

1. They were first notified by the Central Pollution Control Board (CPCB) in 1982 and revised in 2009.
2. The standards cover both short-term (24-hour) and long-term (annual) limits for various pollutants.
3. Parameters such as ozone (O<sub>3</sub>), benzene (C<sub>6</sub>H<sub>6</sub>), and ammonia (NH<sub>3</sub>) are included under the 2009 notification.

**Select the answer using the code given below:**

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

**Que 42. Consider the following with reference to Reserve Bank of India (RBI):**

1. The RBI was established in 1935 under the recommendations of the Hilton Young Commission.
2. The RBI was nationalised in 1949, after Independence.
3. The RBI is responsible for monetary policy formulation in India.

**How many of the above is/are not correct?**

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

**Que 43. Consider the following statements regarding India's Mars Orbiter Mission (MOM):**

1. The mission primarily aimed at demonstrating India's capability in interplanetary missions, with scientific objectives being secondary.
2. MOM was launched using the Polar Satellite Launch Vehicle (PSLV), which is generally designed for Earth-observation satellites.

**Which of the statements given above is/ are correct?**

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

**Que 44. With reference to Right to Education act, consider the following statements:**

1. It aims to provide free and compulsory education to all the children between 6 years to 14 years.
2. It reserves 25% seats for children from deprived and disadvantaged groups at the entry level in private institutions.

3. There is ban on its applications on the minority educational institutions established under Article 30(1) of the constitution.

**Which of the statements given above are correct?**

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

**Que 45. Consider the following statements:**

**Statement 1:** India is a member of the NSG.

**Statement 2:** Membership of the NSG is restricted only to countries that have signed the Nuclear Non-Proliferation Treaty (NPT).

**Which one of the following is correct in respect of the above statements?**

- (a) Both statement 1 and Statement 2 are correct and statement 2 explains statement 1  
(b) Both statement 1 and Statement 2 are correct and statement 2 does not explain statement 1  
(c) Statement 1 is correct, but Statement 2 is incorrect  
(d) Statement 2 is correct, but Statement 1 is incorrect

**Que 46. Consider the following statements:**

**Statement I:** Earthquakes occur mainly along plate boundaries.

**Statement II:** Plate boundaries are zones of high stress due to the movement of lithospheric plates.

**Statement III:** Deep-focus earthquakes never occur in subduction zones.

**Which one of the following is correct in respect of the above statements?**

- (a) Both Statement II and Statement III are correct and both of them explain Statement I  
(b) Both Statement II and Statement III are correct but only one of them explains Statement I  
(c) Only one of the Statements II and III is correct and that explains Statement I  
(d) Neither Statement II nor Statement III is correct

**Que 47. With reference to the SEMICON India Summit 2025, consider the following statements:**

1. It is part of the India Semiconductor Mission, aimed at making India a global hub for semiconductor design and manufacturing.  
2. The Summit witnessed the unveiling of semiconductor chips developed in Assam.  
3. The event included international collaborations for skill development in semiconductor fabrication.

**Which of the statements given above are correct?**

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

**Que 48. With reference to the powers of the President of India regarding assent to Bills, consider the following statements:**

1. The President can return a non-Money Bill once for reconsideration, but if Parliament passes it again, the President is bound to give assent.

2. The President can return a Money Bill for reconsideration before giving assent.  
3. A Constitutional Amendment Bill, when duly passed by Parliament, must receive the President's assent; he/she cannot withhold or return it.

**Which of the statements given above are correct?**

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

**Que 49. Which of the following statements are correct in respect of Coastal Shipping Act, 2025?**

1. The Act aims to promote coastal shipping as an energy-efficient and eco-friendly mode of transport.  
2. It provides a framework for seamless movement of goods and passengers along India's coastline.  
3. The Act allows foreign-flagged vessels unrestricted access to all domestic coastal shipping routes.

**Select the answer using the code given below:**

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

**Que 50. Which Article of the Constitution deals with the appointment of Judges of the Supreme Court?**

- (a) Article 124  
(b) Article 129  
(c) Article 136  
(d) Article 143

**Que 51. Consider the following statement regarding the Biodiversity Beyond National Jurisdiction (BBNJ) treaty:**

1. It is a legally binding treaty under the UN Convention on the Law of sea (UNCLOS) to regulate deals with certain activities in international waters.  
2. India has neither signed nor ratified this treaty.  
3. It provides the right to extract the minerals in high seas.

**How many of the statements given above are correct?**

- (a) Only one  
(b) Only two  
(c) All the three  
(d) None

**Que 52. With reference to the office of the Chief of Defense Staff (CDS) in India, consider the following statements:**

1. The CDS is the four-star general who serves as the Permanent Chairman of the Chiefs of Staff Committee.  
2. The CDS heads the Department of Military Affairs (DMA) in the Ministry of Defense.  
3. The CDS can exercise operational command over the three-armed forces.

**Which of the statements given above are correct?**

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

**Que 53. Which of the following statements are correct in respect of GST Appellate Tribunal (GSTAT):**

1. It is the second appellate authority under the GST law.

- It deals with disputes arising between taxpayers and the tax department.
- Its orders can be challenged before the High Courts and Supreme Court.

**Select the answer using the code given below:**

- 1 and 2 only
- 2 and 3 only
- 1 and 3 only
- 1, 2 and 3

**Que 54. Consider the following statements:**

**Statement 1:** The Confederation of Indian Industry (CII) is a non-government, non-profit, industry-led organization.

**Statement 2:** It was established by an Act of Parliament in 1895 to regulate and promote trade in India.

**Which one of the following is correct in respect of the above statements?**

- Both statement 1 and Statement 2 are correct and statement 2 explains statement 1
- Both statement 1 and Statement 2 are correct and statement 2 does not explain statement 1
- Statement 1 is correct, but Statement 2 is incorrect
- Statement 2 is correct, but Statement 1 is incorrect

**Que 55. Consider the following statements regarding the Jhelum River:**

- The Jhelum originates from the Verinag Spring at the foot of the Pir Panjal range in Jammu & Kashmir.
- It is the largest of all the Indus tributaries.

**Which of the statements given above is/are correct?**

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

**Que 56. Consider the following statements regarding the Bureau of Indian Standards (BIS):**

- BIS is the National Standards Body of India, functioning under the Ministry of Consumer Affairs, Food and Public Distribution.
- BIS certification is voluntary in all cases and there is no provision for making it mandatory.

**Which of the statements given above is/are correct?**

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

**Que 57. Consider the following statements:**

**Statement 1:** State Pollution Control Boards are constituted under the Water (Prevention and Control of Pollution) Act, 1974.

**Statement 2:** The primary function of SPCBs is to implement the provisions of the Air (Prevention and Control of Pollution) Act, 1981.

**Which one of the following is correct in respect of the above statements?**

- Both statement 1 and Statement 2 are correct and statement 2 explains statement 1
- Both statement 1 and Statement 2 are correct and statement 2 does not explain statement 1

- Statement 1 is correct, but Statement 2 is incorrect
- Statement 2 is correct, but Statement 1 is incorrect

**Que 58. Consider the following with reference to Micro, Small and Medium Enterprises (MSMEs) in India?**

- MSMEs are classified based on investment in plant & machinery/equipment and annual turnover.
- The revised definition of MSMEs came into effect in July 2020.
- Both manufacturing and service enterprises are now covered under the same criteria.

**How many of the above is/are not correct?**

- Only one
- Only two
- All three
- None

**Que 59. Consider the following statements regarding the Monkey pox disease:**

- It is the bacterial disease caused by close contact with the monkeys.
- WHO has declared it as international health emergency recently.

**Which of the statements given above is/are correct?**

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

**Que 60. Consider the following statement regarding the Interstate River water disputes:**

- Interstate rivers and River valleys are mentioned in the state list of the Indian constitution.
- These disputes are excluded from the jurisdiction of Supreme Court.
- Central Government may create tribunals to resolve such disputes.

**How many of the statements given above are correct?**

- Only one
- Only two
- All three
- None

**Que 61. Which of the following activities is generally prohibited in Coastal Regulation Zone (CRZ-I) areas?**

- Traditional fishing
- Small-scale community livelihoods
- Large-scale industrial construction
- Eco-tourism initiatives

**Que 62. Which of the following statements are correct in respect of Crude Birth Rate (CBR)?**

- CBR measures the number of live births per 1,000 population in a year.
- CBR is influenced by fertility rate, contraceptive use, and cultural practices.
- CBR takes into account the age structure of the population.

**Select the answer using the code given below:**

- 1 and 2 only
- 2 and 3 only
- 1 and 3 only
- 1, 2 and 3

**Que 63. The term "Ghost bat" often seen in news refers to:**

- (a) The magic wand used to perform black magic in Vajrayan Buddhism
- (b) It is the fossil of an ancient animal belonging to Pleistocene epoch
- (c) It is newly discovered bat species in Western Ghats
- (d) The drone system built by Australia with the war capabilities

**Que 64. With reference to tea cultivation in India, consider the following statements:**

- 1. Tea requires humid and tropical climate with well-distributed rainfall throughout the year.
- 2. Assam and West Bengal together account for more than half of India's total tea production.
- 3. India is the largest exporter of tea in the world.

**Which of the statements given above are correct?**

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

**Que 65. Consider the following statements:**

**Statement 1:** NFHS-5 shows that the share of institutional births in India has risen significantly compared to NFHS-4.

**Statement 2:** This improvement is linked to government schemes such as Janani Suraksha Yojana and better health infrastructure.

**Which one of the following is correct in respect of the above statements?**

- (a) Both statement 1 and Statement 2 are correct and statement 2 explains statement 1
- (b) Both statement 1 and Statement 2 are correct and statement 2 does not explain statement 1
- (c) Statement 1 is correct, but Statement 2 is incorrect
- (d) Statement 2 is correct, but Statement 1 is incorrect

**Que 66. Consider the following statements:**

**Statement I:** The Vice-President of India is elected by an electoral college different from that of the President.

**Statement II:** The Vice-President is elected by members of both Houses of Parliament, including nominated members.

**Statement III:** The President is elected by an electoral college consisting of elected members of both Houses of Parliament and the elected members of the State Legislative Assemblies.

**Which one of the following is correct in respect of the above statements?**

- (a) Both Statement II and Statement III are correct and both of them explain Statement I
- (b) Both Statement II and Statement III are correct but only one of them explains Statement I
- (c) Only one of the Statements II and III is correct and that explains Statement I
- (d) Neither Statement II nor Statement III is correct

**Que 67. Consider the following tribes and the states where they are predominantly found:**

- 1. Apatani – Arunachal Pradesh
- 2. Garo – Meghalaya
- 3. Bhil – Madhya Pradesh
- 4. Toda – Tamil Nadu

**Which of the pairs given above are correctly matched?**

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1, 2, and 3 only
- (d) 1, 2, 3, and 4

**Que 68. With reference to the Great Indian Bustard (GIB), consider the following statements:**

- 1. It is listed as Endangered under the IUCN Red List.
- 2. Its largest surviving population is found in Rajasthan's Desert National Park.
- 3. Collision with overhead power lines is a major threat to its survival.

**Which of the statements given above are correct?**

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

**Que 69. Consider the following statements:**

**Statement I:** The Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) provides income support to all landholding farmer families in India.

**Statement II:** The scheme offers direct income transfer of ₹6,000 per year in three equal instalments.

**Statement III:** The primary objective of the scheme is to supplement the financial needs of farmers in procuring inputs for agriculture and allied activities.

**Which one of the following is correct in respect of the above statements?**

- (a) Both Statement II and Statement III are correct and both of them explain Statement I
- (b) Both Statement II and Statement III are correct but only one of them explains Statement I
- (c) Only one of the Statements II and III is correct and that explains Statement I
- (d) Neither Statement II nor Statement III is correct

**Que 70. Which of the following statements are correct in respect of composition of the Election Commission of India:**

- 1. The Commission consists of the Chief Election Commissioner and such number of other Election Commissioners as the President may decide.
- 2. The President appoints the Chief Election Commissioner and other Election Commissioners.
- 3. The conditions of service and tenure of Election Commissioners are determined by Parliament through law.

**Select the answer using the code given below:**

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

**Que 71. With reference to ancient scripts, consider the following statements:**

- 1. Boustrophedon is a style of writing in which alternate lines are written from left to right and then right to left.
- 2. The Indus Valley script is fully deciphered and provides detailed records of the political and religious life of the Indus Civilization.
- 3. Both Boustrophedon and the Indus Valley script are examples of writing systems used in the ancient world.

**How many of the statements given above is/ are correct:**

- (a) One only
- (b) Two only
- (c) All three
- (d) None

**Que 72. With reference to the Trade and Economic Partnership Agreement (TEPA) between India and the European Free Trade Association (EFTA), consider the following statements:**

1. TEPA is India's first comprehensive free trade pact with a grouping of developed European economies.
2. EFTA comprises Switzerland, Norway, Iceland, and Liechtenstein.
3. The agreement focuses only on trade in goods and excludes services.

**Which of the statements given above are correct?**

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

**Que 73. Which of the following statements are not correct in respect of Katchatheevu Island:**

1. The 1974 agreement recognized Sri Lanka's sovereignty over Katchatheevu.
2. Indian fishermen have traditional fishing rights around the island under the 1974 agreement.
3. India's Supreme Court has upheld the 1974 agreement as constitutionally valid.

**Select the answer using the code given below:**

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

**Que 74. Consider the following statements:**

**Statement I:** UNCLOS provides the legal framework for the rights and responsibilities of nations in their use of the world's oceans.

**Statement II:** UNCLOS establishes Exclusive Economic Zones (EEZs) extending up to 200 nautical miles from the baseline.

**Statement III:** UNCLOS allows coastal states full sovereignty over all waters up to 200 nautical miles.

**Which one of the following is correct in respect of the above statements?**

- (a) Both Statement II and Statement III are correct and both of them explain Statement I
- (b) Both Statement II and Statement III are correct but only one of them explains Statement
- (c) Only one of the Statements II and III is correct and that explains Statement I
- (d) Neither Statement II nor Statement III is correct

**Que 75. With reference to the mining of minerals in India, consider the following statements:**

1. The regulation of mines and mineral development is listed in the Union List of the Seventh Schedule of the Constitution of India.
2. The Mineral Laws (Amendment) Act, 2020 allows seamless transfer of statutory clearances to new lessees in case of auctioned mines.

3. District Mineral Foundation (DMF) is a statutory body set up under the Mines and Minerals (Development and Regulation) Act, 1957 to work for the interest and benefit of persons affected by mining-related operations.

**How many of the statements given above is/ are correct:**

- (a) One only
- (b) Two only
- (c) All three
- (d) None

**Que 76. With reference to the National Tiger Conservation Authority (NTCA), consider the following statements:**

1. The NTCA is a statutory body constituted under the Wildlife (Protection) Act, 1972.
2. One of the key functions of NTCA is to approve the Tiger Conservation Plans prepared by States.

**Which of the statements given above is/are correct?**

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

**Que 77. Consider the following statements:**

**Statement I:** Great Nicobar Island is significant for biodiversity conservation and strategic purposes in India.

**Statement II:** It is home to the Great Nicobar Biosphere Reserve, which protects unique flora and fauna.

**Statement III:** The island is located in the Andaman Sea and is closest to mainland India.

**Which one of the following is correct in respect of the above statements?**

- (a) Both Statement II and Statement III are correct and both of them explain Statement I
- (b) Both Statement II and Statement III are correct but only one of them explains Statement
- (c) Only one of the Statements II and III is correct and that explains Statement I
- (d) Neither Statement II nor Statement III is correct

**Que 78. Consider the following with reference to the Citizenship Act, 1955:**

1. Citizenship by birth in India is granted to anyone born in India on or after January 26, 1950.
2. Citizenship by descent is available to a person born outside India if either parent is an Indian citizen at the time of birth.
3. Citizenship can be acquired by registration, naturalization, or incorporation of territory.

**How many of the above is/are correct?**

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

**Que 79. With reference to the cultural traditions of India, consider the following statements:**

1. The Braj language, associated with devotional poetry and songs of Krishna, is predominantly spoken in parts of Uttar Pradesh, Rajasthan, and Madhya Pradesh.
2. The Kumbh Mela, recognized by UNESCO as an Intangible Cultural Heritage of Humanity, is held in four locations along the Ganga and its tributaries.

3. Indie films in India often explore themes rooted only in urban life and modernity, avoiding traditional or religious settings.

**Which of the statements given above is/are correct?**

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

**Que 80. Consider the following tributaries of the Indus and their places of origin:**

Tributary	Place of Origin
<b>A.</b> Jhelum	1. Beas Kund near Rohtang Pass (Himachal Pradesh)
<b>B.</b> Chenab	2. Rakas Lake near Mansarovar (Tibet)
<b>C.</b> Sutlej	3. Verinag Spring (Jammu & Kashmir)
<b>D.</b> Beas	4. Confluence of Chandra and Bhaga rivers (Himachal Pradesh)

**Which of the following correctly match the rivers with their places of origin:**

- (a) A-3, B-4, C-2, D-1  
 (b) A-1, B-3, C-4, D-2  
 (c) A-4, B-1, C-2, D-3  
 (d) A-2, B-4, C-1, D-3

**Que 81. Consider the following statements:**

**Statement I:** SEBI has introduced Single Window Automatic & Generalized Access for Trusted Foreign Investors (SWAGAT- FI) for foreign portfolio investors.

**Statement II:** Net Foreign investment has decreased in the FY 2024-25.

**Statement III:** SWAGAT- FI framework aims to boost investment by unifying, streamlining and standardizing access for select category of investors.

**Which one of the following is correct in respect of the above statements?**

- (a) Both Statement II and Statement III are correct and both of them explain Statement I  
 (b) Both Statement II and Statement III are correct but only one of them explains Statement  
 (c) Only one of the Statements II and III is correct and that explains Statement I  
 (d) Neither Statement II nor Statement III is correct

**Que 82. With reference to the National Research Foundation (NRF) announced by the Government of India, consider the following statements:**

- NRF aims to provide a unified, strategic, and coordinated approach to research and innovation in India.
- It will primarily focus on funding research in higher education institutions and public research labs.
- NRF will operate under the direct administrative control of the Ministry of Science and Technology.

**How many of the statements given above are correct:**

- (a) Only one  
 (b) Only two  
 (c) All three  
 (d) None

**Que 83. Which of the following statements are correct in respect of the 1950 Treaty of Peace and Friendship between India and Nepal primarily provides for:**

- Free movement of people and goods
- Equal national treatment for citizens in economic matters
- Mutual defense cooperation against external threats

**Select the answer using the code given below:**

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

**Que 84. Consider the following statements:**

**Statement 1:** The Digital Personal Data Protection (DPDP) Act, 2023 provides a legal framework to protect personal data of individuals in India.

**Statement 2:** The Act classifies entities handling personal data as “data fiduciaries” and requires them to process data only for lawful purposes with consent or legitimate use.

**Which one of the following is correct in respect of the above statements?**

- (a) Both statement 1 and Statement 2 are correct and statement 2 explains statement 1  
 (b) Both statement 1 and Statement 2 are correct and statement 2 does not explain statement 1  
 (c) Statement 1 is correct, but Statement 2 is incorrect  
 (d) Statement 2 is correct, but Statement 1 is incorrect

**Que 85. Which of the following statements are correct in respect of restrictions can be imposed under Article 19(1)(g)?**

- Imposing taxation or licensing requirements for certain trades or businesses.
- Completely banning a person from practising a profession without reason.
- Regulating professional standards to protect the public interest.

**Select the answer using the code given below:**

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

**Que 86. Consider the following with reference to Retail Inflation in India:**

- Retail inflation measures the average change in prices of goods and services consumed by households.
- It is primarily calculated through the Consumer Price Index (CPI).
- The Wholesale Price Index (WPI) forms the main basis for measuring retail inflation.

**How many of the above is/are not correct?**

- (a) Only one  
 (b) Only two  
 (c) All three  
 (d) None

**Que 87. With reference to “digital arrest” scams, consider the following statements:**

- Digital arrest is a form of cyber extortion where fraudsters impersonate law enforcement officials to demand money from victims.
- Social engineering and psychological manipulation are key tactics used by fraudsters in executing digital arrest scams.

**Which of the statements given above is/are correct?**

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

**Que 88. With reference to the Scarborough Shoal, consider the following statements:**

1. It is claimed by both China and the Philippines in the South China Sea.
2. In 2016, the Permanent Court of Arbitration (PCA) upheld China's "nine-dash line" claim over the shoal.

**Which of the statements given above is/are correct?**

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

**Que 89. With references to the Waqf (Amendment) Act, 2025, consider the following statements:**

1. The Act mandates digitization and centralized registration of all Waqf properties to ensure transparency and accountability.
2. It allows any individual, including non-Muslims, to declare government land as Waqf property without prior approval.

**Which of the statements given above is/are correct?**

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

**Que 90. With reference to the Periodic Labor Force Survey (PLFS), consider the following statements:**

1. PLFS is conducted by the Ministry of Labor and Employment, Government of India.
2. It provides annual estimates of employment and unemployment in both urban and rural areas.
3. PLFS replaced the quinquennial Employment-Unemployment Survey (EUS) conducted by the NSSO.

**Which of the statements given above are correct?**

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

**Que 91. Consider the following statements:**

1. Sree Narayana Guru was a social reformer and spiritual leader from Kerala who worked for the upliftment of marginalized communities and promoted social equality.
2. He led the Vaikom Satyagraha to fight against untouchability and the Temple Entry Proclamation in Travancore.

**Which of the statements given above is/are correct?**

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

**Que 92. Consider the following with reference to Travancore Devaswom Board (TDB):**

1. TDB is a statutory body constituted by the Government of Kerala to manage and administer temples in the Travancore region.

2. TDB is responsible for the maintenance of temple properties, rituals, and welfare of priests and staff.
3. TDB functions under the direct control of the central government and follows the Central Hindu Religious and Charitable Endowments Act.

**How many of the above is/are correct?**

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

**Que 93. Which of the following statements are correct in respect of Typhon missile system?**

1. A full Typhon battery typically includes multiple trailer-mounted launchers and a mobile command/post and generator vehicles.
2. The system was operationally deployed overseas (e.g., the Philippines) prior to being shown in Japan.
3. Typhon is limited to anti-air missions and cannot launch Tomahawk cruise missiles.

**Select the answer using the code given below:**

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

**Que 94. Consider the following statements:**

**Statement I:** A Joint Parliamentary Committee (JPC) is set up by the Indian Parliament to investigate specific issues of national importance.

**Statement II:** A JPC is composed of members from both the Lok Sabha and the Rajya Sabha.

**Statement III:** The findings of a JPC are binding on the Government, which must implement them.

**Which one of the following is correct in respect of the above statements?**

- (a) Both Statement II and Statement III are correct and both of them explain Statement I
- (b) Both Statement II and Statement III are correct but only one of them explains Statement I
- (c) Only one of the Statements II and III is correct and that explains Statement I
- (d) Neither Statement II nor Statement III is correct

**Que 95. The term Dehyphenation seen in the news related to:**

- (a) The foreign policy of India towards Israel and Palestine
- (b) The process of hibernation in Polar bear
- (c) The melting of Antarctica ice which causes an Ozone hole
- (d) The technique used by cybercriminals to conduct fraud

**Que 96. With reference to wheat production in India, consider the following statements:**

1. Wheat is primarily grown in Rabi season, with Uttar Pradesh being the largest producing state.
2. The crop requires cool weather during the growing season and bright sunshine at the time of ripening and harvesting.

**Which of the statements given above is/are correct?**

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

**Que 97. Consider the following statements:**

**Statement 1:** The IAEA is responsible for promoting safe, secure, and peaceful use of nuclear energy worldwide.

**Statement 2:** The IAEA directly enforces sanctions on countries that violate nuclear non-proliferation norms.

**Which one of the following is correct in respect of the above statements?**

- (a) Both statement 1 and Statement 2 are correct and statement 2 explains statement 1
- (b) Both statement 1 and Statement 2 are correct and statement 2 does not explain statement 1
- (c) Statement 1 is correct, but Statement 2 is incorrect
- (d) Statement 2 is correct, but Statement 1 is incorrect

**Que 98. Consider the following with reference to Zaporizhzhia Nuclear Power Plant in Ukraine:**

- 1. It is the largest nuclear power plant in Europe.
- 2. The plant is under Russian control since the 2022 conflict.
- 3. The IAEA regularly monitors the plant to ensure safety and prevent nuclear accidents.

**How many of the above is/are not correct?**

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

**Que 99. With reference to the Indian economy, consider the following statements regarding a cut in the U.S. Federal Reserve interest rates:**

- 1. Lower U.S. interest rates may lead to capital outflows from India, putting downward pressure on the Indian Rupee.
- 2. Reduced rates in the U.S. could make Indian exports more competitive in global markets due to a weaker Rupee.
- 3. A Fed rate cut has a direct impact on India's domestic lending rates and inflation.

**Which of the statements given above are incorrect?**

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

**Que 100. With reference to radar systems, consider the following statements:**

- 1. Surveillance radars are primarily used to detect and track incoming threats such as missiles, aircraft, or artillery shells, and provide targeting information to weapon systems.
- 2. Fire radars are mainly used for monitoring airspace or maritime areas over long distances and are not directly involved in guiding weapons.
- 3. Fire radars have longer range than surveillance radars.

**Which of the statements given above is/are correct?**

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) None of them

**Que 101. Consider the following statements:**

**Statement 1:** The World Health Organization is a specialized agency of the United Nations responsible for international public health.

**Statement 2:** WHO's Constitution came into force on 7 April 1948, which is now celebrated every year as World Health Day.

**Which one of the following is correct in respect of the above statements?**

- (a) Both statement 1 and Statement 2 are correct and statement 2 explains statement 1
- (b) Both statement 1 and Statement 2 are correct and statement 2 does not explain statement 1
- (c) Statement 1 is correct, but Statement 2 is incorrect
- (d) Statement 2 is correct, but Statement 1 is incorrect

**Q 102. CRISIL ratings help investors by:**

- (a) Ensuring guaranteed returns on investment
- (b) Assessing creditworthiness and risk of default
- (c) Setting government monetary policy
- (d) Controlling inflation

**Que 103. With reference to the United Nations Security Council (UNSC), consider the following statements:**

- 1. The UNSC can designate individuals and organizations as terrorists under Resolution 1267, obliging all member states to impose sanctions such as asset freezes, travel bans, and arms embargoes.
- 2. Any listing of a terrorist organization under UNSC resolutions requires approval by a two-thirds majority in the General Assembly.

**Which of the statements given above is/are correct?**

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

**Que 104. With reference to the Chabahar Port Project, consider the following statements:**

- 1. The Chabahar Port provides India direct access to Afghanistan and Central Asia, bypassing Pakistan.
- 2. The project is being jointly developed by India, Iran, and the United States as part of the International North-South Transport Corridor (INSTC).

**Which of the statements given above is/are correct?**

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

**Que 105. Which of the following statements are correct in respect of Abraham Accords?**

- 1. The Abraham Accords were signed in 2020 to normalize diplomatic relations between Israel and some Arab nations.
- 2. The United States played a key mediating role in facilitating the Abraham Accords.
- 3. The Accords included commitments to resolve the Israeli-Palestinian conflict by establishing a Palestinian state.

**Select the answer using the code given below:**

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

**Que 106. Consider the following statements:**

**Statement 1:** The Leader of the Opposition in the Lok Sabha has a role in the appointment of the Chief Information Commissioner.

**Statement 2:** Any opposition party, irrespective of its strength, can have its leader recognized as the Leader of the Opposition.

**Which one of the following is correct in respect of the above statements?**

- Both statement 1 and Statement 2 are correct and statement 2 explains statement 1
- Both statement 1 and Statement 2 are correct and statement 2 does not explain statement 1
- Statement 1 is correct, but Statement 2 is incorrect
- Statement 2 is correct, but Statement 1 is incorrect

**Que 107. Consider the following statements regarding rare earth metals (REMs):**

- Rare earth metals are critical for the manufacture of high-tech devices, electric vehicles, and renewable energy technologies.
- India is among the top producers of rare earth metals in the world, with significant reserves concentrated in Odisha and Kerala.
- Rare earth metals are usually found in high concentrations and are easy to extract and process.

**Which of the statements given above are correct?**

- 1 and 2 only
- 1 only
- 2 and 3 only
- 1, 2, and 3

**Que 108. With reference to the legal system in India, consider the following statements:**

- The Unlawful Activities (Prevention) Act (UAPA) makes it difficult for courts to grant bail even if the accused is under-trial and evidence is not conclusive.
- Judicial delays and repeated adjournments can make the trial process itself a form of punishment.
- The Bharatiya Nyaya Sanhita (BNS) and Bharatiya Nagarik Suraksha Sanhita (BNSS) have strengthened safeguards against misuse of anti-terror laws like UAPA.

**Which of the statements given above are correct?**

- 1 and 2 only
- 2 and 3 only
- 1 and 3 only
- 1, 2, and 3

### ANSWER KEY

1. (a)	28. (a)	55. (a)	82. (b)
2. (b) (1&3)	29. (a)	56. (a)	83. (d)
3. (d)	30. (b)	57. (b)	84. (a)
4. (c)	31. (a)	58. (a)	85. (c)
5. (c)	32. (b)	59. (d)	86. (a) (3 only)
6. (b) (1&2)	33. (a)	60. (b)	87. (c)
7. (d)	34. (a)	61. (c)	88. (a)
8. (b)	35. (b)	62. (a)	89. (a)
9. (a)	36. (a)	63. (d)	90. (c)
10. (c)	37. (d)	64. (a)	91. (a)

11. (b)	38. (b)	65. (a)	92. (b) (1&2)
12. (d)	39. (d)	66. (a)	93. (a)
13. (a)	40. (a)	67. (d)	94. (c)
14. (c)	41. (d)	68. (b)	95. (a)
15. (c)	42. (d)	69. (a)	96. (c)
16. (c)	43. (a)	70. (d)	97. (c)
17. (d)	44. (d)	71. (b)	98. (d)
18. (b) (1 & 2)	45. (d)	72. (a)	99. (d)
19. (d)	46. (c)	73. (b)	100. (d)
20. (b)	47. (d)	74. (c)	101. (b)
21. (c)	48. (c)	75. (c)	102. (b)
22. (a)	49. (a)	76. (c)	103. (a)
23. (c)	50. (a)	77. (c)	104. (a)
24. (b)	51. (a)	78. (c)	105. (a)
25. (a)	52. (a) (1&2)	79. (a)	106. (c)
26. (a)	53. (d)	80. (a)	107. (a)
27. (a)	54. (c)	81. (b)	108. (a)

### DAILY MAINS ANSWER WRITING PRACTICE

Que. Malnutrition in India persists despite various policy interventions. What are the structural impediments in tackling this issue? Suggest measures to improve nutritional security in India? (GS 1, 250 words, 15 marks)

Que. Migrant workers in India face economic inclusion but political exclusion. Discuss the challenges in ensuring their electoral participation and suggest measures for reform. (GS 2, 150 Words, 10 Marks)

Que. What are the key factors contributing to gender disparity in organ donation in India, and how effective have the recent initiatives by NOTTO been in addressing this imbalance? (GS2, 150 words 10 marks)

Que. The idea of unity in diversity has been a defining feature of Indian civilization." Examine this statement in the context of India's cultural, linguistic, and religious diversity. How has this idea influenced India's national integration? (GS 1, 250 Words, 15 Marks)

Que. "The implementation of the Women's Reservation Act, 2023, marks a significant step toward inclusive governance. However, its delayed execution raises concerns about political will and structural barriers." Critically Analyse. (GS2, 250 words, 15 marks)

Que. The Archaeological Survey of India (ASI) has been central to preserving and interpreting India's past. In light of recent controversies. Critically analyse its historical role, credibility challenges and the need for institutional reforms. (GS1, 150 Words, 10 Marks)

Que. What is carbon farming and how can regenerative agriculture contribute to sustainable food systems in India? Discuss the challenges in their large-scale adoption. (GS 3, 250 Words, 15 Marks)

Que. India is exploring the potential of e-commerce exports through initiatives like E-Commerce Export Hubs (ECEHs). Discuss the opportunities and challenges in promoting e-commerce exports from India. Should the government allow FDI in the inventory-led model to support MSMEs? (GS 3, 250 Word, 15 Marks)

Que. India's health-care system faces the twin challenge of expanding access and ensuring affordability. Discuss the measures needed to build an inclusive, efficient and sustainable health-care model. (GS 2, 250 Words, 15 Marks)

Que. Despite constitutional guarantees of equality, women continue to remain underrepresented in the higher judiciary of India. Discuss the reasons behind this low representation and suggest measures to ensure greater gender inclusivity in the judicial system. (GS2, 250 Words, 15 Marks)

Que. Examine India's dependence on energy imports and analyse its implications for national security in the light of the country's present energy policy. (GS3, 150 Words, 10 Marks)

Que. In the backdrop of shifting global geopolitics, examine the key areas of convergence between India and Japan. What are the major challenges in their partnership, and suggest measures to further strengthen and deepen bilateral relations. (GS2, 250 words, 15 Marks)

Que. What were the events that led to the Quit India Movement? Point out its results. (GS1, 150 words, 10 marks)

Q. Urbanisation in India has enhanced services but weakened social bonds and community trust. Analyse its impact on social capital. (GS1, 150 words, 10 Marks)

Que. The imposition of higher tariffs by the United States on Indian exports has raised concerns for India's manufacturing and MSME sectors. Discuss the broader economic and social implications of such external trade shocks on India's economy. Suggest policy measures to enhance resilience of Indian exports in the face of global trade uncertainties. (GS3, 250 words, 15 marks)

Que. Discuss the role of the Finance Commission of India in maintaining fiscal federalism. How does it contribute to cooperative governance between the Centre and the States? Highlight some challenges faced by the Commission. (GS3, 250 words, 15 Marks)

Que. Large-scale infrastructure projects in ecologically sensitive regions often create a trade-off between economic development, environmental sustainability and tribal rights. Discuss the constitutional safeguards, legal provisions and policy measures in India that aim to achieve a balance among these concerns. (GS 2&3, 250 words, 15 Marks)

Que. Critically examine the extent to which BRICS has emerged as a collective voice of the Global South. In this context, suggest measures for India to enhance its engagement with the grouping while safeguarding its strategic interests. (GS 2, 250 Words, 15 Marks)

Que. Technological sovereignty has emerged as a critical component of national security and self-reliance in the 21st century. Discuss the significance of technological independence for India, highlighting the challenges and prospects in the fields of software and hardware. Suggest suitable measures to achieve it. (GS3, 250 words, 15 marks)

Que. In view of India's rising energy demands, evaluate the role of nuclear power as a sustainable solution. Critically examine its prospects and challenges. (GS3, 250 Words, 15 Marks)

Que. The GST 2.0 reforms in the health sector seek to make medical care and preventive services more affordable. Examine their likely impact on households and the health-care industry. (GS 3, 150 words, 10 Marks)

Que. India possesses the world's largest collection of manuscripts, reflecting the cultural and scientific journey of humanity. Discuss the significance of digitising these manuscripts in preserving India's knowledge heritage. Also examine the challenges involved and suggest measures to overcome them. (GS-1/GS-2, 250 Words, 15 Marks)

Que. The pendency of cases in the Supreme Court has touched an all-time high despite full judicial strength and measures like partial working days during vacations. Discuss the reasons for this persistent backlog and suggest institutional reforms needed to ensure timely justice delivery. (GS 2, 250 Words, 15 Marks)

Que. Discuss the challenges in balancing wildlife conservation, legal compliance, and public accountability in private zoological and rehabilitation initiatives. (GS 3, 150 Words, 10 Marks)

Que. Judicial experimentalism, while aimed at addressing systemic concerns, can sometimes undermine access to justice and the functional autonomy of criminal justice institutions. Discuss with suitable examples. (GS 2, 150 Words 10 Marks)

Que. Waqf properties in India face challenges of mismanagement and encroachment. Examine the role of Waqf Boards and suggest measures to improve their functioning. (GS 2, 150 words, 10 Marks)

Que. A caste census in India is seen as both a tool for ensuring social justice and a challenge to governance. Critically examine the arguments for and against conducting a caste-based census. (GS I, 250 Words, 15 Marks)



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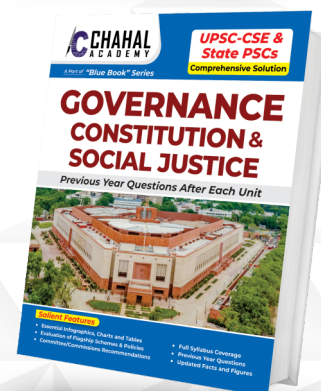
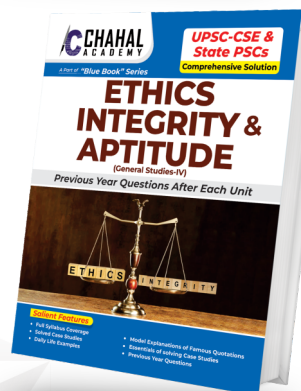
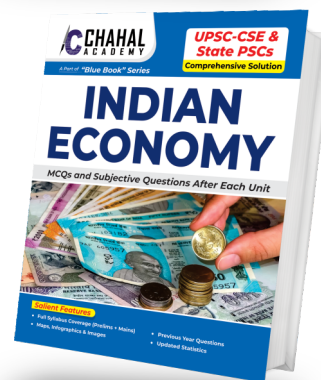
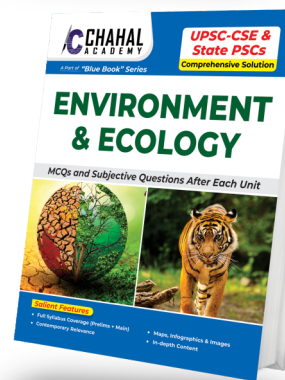
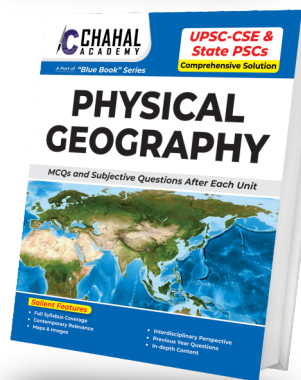
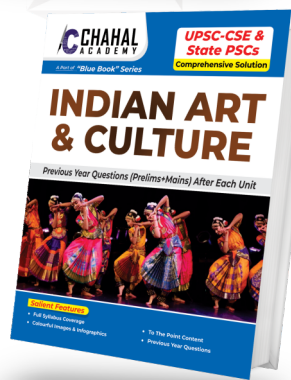
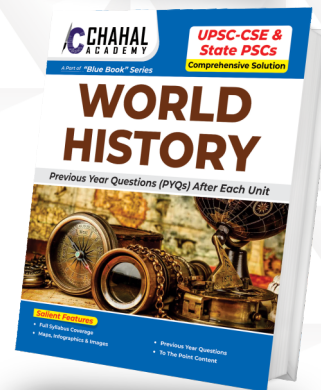
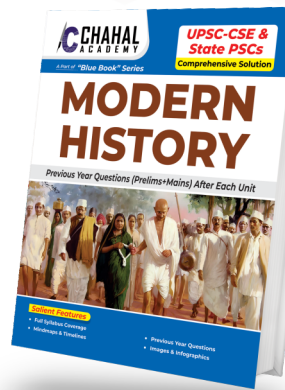
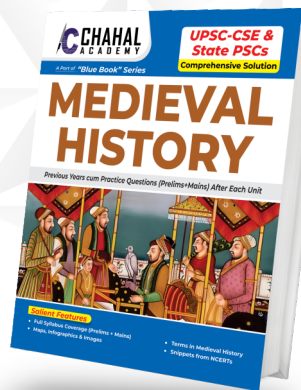
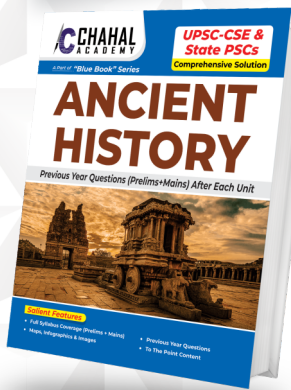
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