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**QUESTION & ANSWERS**

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# INDEX

❖ <b><i>Polity &amp; Governance</i></b>	<b>3</b>
❖ <b><i>International Relations</i></b>	<b>15</b>
❖ <b><i>Economy</i></b>	<b>25</b>
❖ <b><i>Environment &amp; Ecology</i></b>	<b>30</b>
❖ <b><i>Science &amp; Technology</i></b>	<b>38</b>
❖ <b><i>Internal Security</i></b>	<b>45</b>
❖ <b><i>Art &amp; Culture</i></b>	<b>46</b>
❖ <b><i>Government Policies</i></b>	<b>48</b>
❖ <b><i>Public Health</i></b>	<b>50</b>

# Polity & Governance

**Q1. “Deendayal Antyodaya Yojana–National Rural Livelihoods Mission (DAY-NRLM) is not merely a poverty alleviation programme but a transformative framework for women-led rural development.” Discuss its objectives, institutional architecture, achievements, and the role it plays in women’s empowerment and sustainable livelihoods in India.**

(GS Paper II Governance, Social Justice)

<b>Introduction</b>	<p>The Deendayal Antyodaya Yojana–National Rural Livelihoods Mission (DAY-NRLM) is a flagship programme of the Ministry of Rural Development aimed at reducing rural poverty through <b>women-centric institutional building, financial inclusion, and livelihood diversification</b>. Rather than a conventional welfare scheme, it represents a <b>transformative framework for women-led rural development</b>.</p>
<b>Body</b>	<p><b>Objectives of DAY-NRLM</b></p> <p>DAY-NRLM seeks to:</p> <ul style="list-style-type: none"><li>• Mobilise rural poor households, especially women, into <b>Self-Help Groups (SHGs)</b></li><li>• Enable access to <b>formal credit, skills, and markets</b></li><li>• Promote <b>sustainable and diversified livelihoods</b></li><li>• Strengthen <b>social inclusion and access to entitlements</b> through convergence</li></ul> <p><b>Institutional Architecture</b></p> <p>The mission follows a <b>three-tier community structure</b>:</p> <ul style="list-style-type: none"><li>• <b>Self-Help Groups (SHGs)</b> at the village level</li><li>• <b>Village Organisations (VOs)</b></li><li>• <b>Cluster Level Federations (CLFs)</b> at the sub-block level</li></ul> <p>Community Resource Persons such as <b>Bank Sakhis, Krishi Sakhis, and Pashu Sakhis</b> ensure last-mile delivery of financial, agricultural, and livestock services, making institutions self-managed and sustainable.</p> <p><b>Achievements and Impact</b></p> <ul style="list-style-type: none"><li>• <b>10.05 crore households</b> mobilised into <b>90.9 lakh SHGs</b></li><li>• <b>₹11 lakh crore</b> credit disbursed to women SHGs with <b>&gt;98% repayment rate</b></li><li>• <b>4.62 crore Mahila Kisans</b> supported through agro-ecological</li></ul>

	<p>practices</p> <ul style="list-style-type: none"> <li>• <b>3.74 lakh micro-enterprises</b> promoted under SVEP</li> <li>• <b>17.5 lakh rural youth trained</b> under DDU-GKY</li> </ul> <p>These outcomes highlight the mission’s scale and financial discipline.</p> <p><b>Role in Women’s Empowerment and Sustainable Livelihoods</b></p> <p>DAY-NRLM enhances <b>economic agency, decision-making power, and leadership</b> of rural women. By promoting farm, non-farm, and skill-based livelihoods, it builds <b>income resilience</b>, reduces distress migration, and strengthens rural economies.</p>
<b>Conclusion</b>	<p>DAY-NRLM has evolved into a <b>comprehensive rural transformation model</b>, combining poverty alleviation with women’s empowerment, institutional democracy, and sustainable livelihoods—making it a cornerstone of inclusive growth in India.</p>

**Q2. Examine how recent policy initiatives, including the Biopharma SHAKTI announced in Budget 2026–27, aim to transform India into a global biopharma hub. Discuss the opportunities and challenges involved.**

**GS Paper II (Governance & Health Policy)**

<b>Introduction</b>	<p>India’s pharmaceutical sector has traditionally been dominated by low-cost generic medicines. However, with the rising global demand for biologics and biosimilars driven by non-communicable diseases, the Union Budget 2026–27 marks a strategic shift by positioning <b>biopharma as a core pillar of India’s healthcare and manufacturing strategy</b>. The announcement of <b>Biopharma SHAKTI</b> reflects India’s ambition to capture <b>5% of the global biopharmaceutical market</b> and move up the pharmaceutical value chain.</p>
<b>Body</b>	<p><b>Policy Push towards a Global Biopharma Hub</b></p> <ul style="list-style-type: none"> <li>• <b>Biopharma SHAKTI (₹10,000 crore)</b> aims to strengthen end-to-end capabilities in biologics and biosimilars by focusing on manufacturing scale, skilled manpower, clinical trials, and regulatory reforms.</li> <li>• Expansion and upgradation of <b>NIPERs</b> addresses the shortage of specialised human resources.</li> <li>• Creation of <b>1,000+ accredited clinical trial sites</b> enhances India’s position as a global destination for ethical and cost-efficient trials.</li> <li>• Strengthening <b>CDSCO</b> improves regulatory credibility and alignment with global standards.</li> </ul> <p><b>Complementary Ecosystem Support</b></p> <ul style="list-style-type: none"> <li>• <b>National Biopharma Mission (NBM)</b> and <b>BIRAC</b> have</li> </ul>

	<p>supported indigenous vaccines, biosimilars, diagnostics, and startups, fostering innovation and affordability.</p> <ul style="list-style-type: none"> <li>• Manufacturing-focused schemes such as <b>PLI for pharmaceuticals, Bulk Drug Parks, and SPI</b> enhance supply chain resilience.</li> <li>• <b>PRIP, BioE3 Policy, and Bio-RIDE Scheme</b> promote advanced R&amp;D, biomanufacturing, and bio-entrepreneurship.</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Affordable biologics improve access to advanced healthcare.</li> <li>• High-skilled employment generation and export competitiveness.</li> <li>• Reduced import dependence and technological self-reliance.</li> </ul> <p><b>Challenges</b></p> <ul style="list-style-type: none"> <li>• High R&amp;D costs and long gestation periods.</li> <li>• Regulatory complexity and biosafety concerns.</li> <li>• Need for sustained investment in quality assurance and IP protection.</li> </ul>
<b>Conclusion</b>	<p>India's biopharma strategy reflects a <b>coherent, long-term policy vision</b> integrating innovation, manufacturing, regulation, and skill development. If effectively implemented, initiatives like <b>Biopharma SHAKTI</b> can transform India from a generic drug supplier into a <b>globally competitive, innovation-driven biopharma hub</b>, strengthening both public health outcomes and economic growth.</p>

**Q3. “The Finance Commission plays a critical role in maintaining fiscal federalism in India. Discuss its functions and evaluate the challenges it faces in addressing Vertical Fiscal Imbalance (VFI). Suggest measures to strengthen its effectiveness.”**

**(GS Paper: II – Centre–State Relations, Constitutional Bodies, Cooperative Federalism)**

<b>Introduction</b>	<p>The Finance Commission is a constitutional body established under <b>Article 280</b> of the Indian Constitution to recommend the distribution of financial resources between the Union and the States. It acts as a key institutional mechanism for promoting <b>cooperative federalism</b> and ensuring fiscal equity across regions. The establishment of the <b>16th Finance Commission</b>, chaired by Dr. Arvind Panagariya, comes at a time when concerns over Vertical Fiscal Imbalance (VFI) and Centre–State financial relations are intensifying.</p>
<b>Body</b>	<p><b>Role and Functions of the Finance Commission</b></p> <p><b>1. Tax Devolution</b></p> <ul style="list-style-type: none"> <li>• Recommends <b>vertical devolution</b>, i.e., the share of States in the Centre's net tax revenue.</li> <li>• Determines <b>horizontal devolution</b>, distributing funds among</li> </ul>

States based on criteria such as population, income distance, geography, and demographic performance.

## 2. Grants-in-Aid

- Suggests principles for providing grants from the **Consolidated Fund of India** under Article 275.
- Helps bridge fiscal gaps and supports weaker States.

## 3. Strengthening Local Governments

- Recommends measures to augment resources of **Panchayats and Municipalities**, deepening grassroots democracy.

## 4. Disaster Financing

- Reviews disaster management funding frameworks and recommends improvements under the **Disaster Management Act, 2005**.

## Understanding Vertical Fiscal Imbalance (VFI)

Vertical Fiscal Imbalance arises when expenditure responsibilities exceed revenue-raising powers.

- States account for **~61% of public expenditure** but generate only **~38% of total revenue**.
- This dependency increases reliance on central transfers, potentially constraining fiscal autonomy.

## Importance of Reducing VFI:

- Enhances efficiency in public spending.
- Enables better crisis management.
- Strengthens federal balance and democratic decentralisation.

## Key Challenges Faced by the Finance Commission

### 1. Growing Use of Cesses and Surcharges

- Nearly **23% of gross tax revenue** comes from these sources, which are **not shareable with States**, shrinking the divisible pool.

### 2. Political Economy Concerns

- Since the Commission is appointed by the Centre, perceptions of political bias sometimes emerge.

### 3. Implementation Gap

- Recommendations are advisory; partial acceptance by the Union may dilute intended outcomes.

### 4. Inter-State Equity Debate

- Southern and industrialised States argue they receive less despite higher contributions and better demographic performance.

### 5. Rising Fiscal Pressures

- Welfare demands, infrastructure needs, and climate-related

	<p>expenditures increase State financial stress.</p> <p><b>Measures to Strengthen the Finance Commission</b></p> <ol style="list-style-type: none"> <li><b>1. Expand the Divisible Tax Pool</b> <ul style="list-style-type: none"> <li>• Limit excessive reliance on cesses and surcharges.</li> </ul> </li> <li><b>2. Increase Tax Devolution</b> <ul style="list-style-type: none"> <li>• Consider raising States’ share to improve fiscal autonomy.</li> </ul> </li> <li><b>3. Enhance Transparency</b> <ul style="list-style-type: none"> <li>• Adopt objective and data-driven criteria to reduce political perceptions.</li> </ul> </li> <li><b>4. Incentivise Fiscal Responsibility</b> <ul style="list-style-type: none"> <li>• Reward States for tax effort, governance reforms, and demographic management.</li> </ul> </li> <li><b>5. Strengthen Cooperative Federalism</b> <ul style="list-style-type: none"> <li>• Promote structured Centre–State fiscal dialogue to resolve disputes.</li> </ul> </li> </ol>
<p><b>Conclusion</b></p>	<p>The Finance Commission remains the cornerstone of India’s fiscal federal architecture. Addressing Vertical Fiscal Imbalance is essential not only for equitable development but also for preserving the spirit of cooperative federalism. A stronger, more transparent, and empowered Finance Commission can ensure that fiscal decentralisation keeps pace with India’s evolving economic and governance challenges.</p>

**Q4. “The exclusion of certain public charitable funds from parliamentary scrutiny raises concerns about transparency and accountability in governance.” Examine in the context of PM CARES and similar funds.**

(GS Paper II – Polity & Governance (Parliamentary Procedures, Accountability, Transparency))

<p><b>Introduction</b></p>	<p>Parliamentary oversight is a cornerstone of democratic governance, ensuring transparency and accountability in the use of public resources. The Prime Minister’s Office (PMO) recently stated that questions related to PM CARES, the Prime Minister’s National Relief Fund (PMNRF), and the National Defence Fund (NDF) are not admissible in Lok Sabha since these are public charitable trusts funded through voluntary contributions rather than the Consolidated Fund of India. This has sparked debate on the balance between legal autonomy and democratic accountability.</p>
<p><b>Body</b></p>	<p><b>Nature of PM CARES and Similar Funds</b></p> <ul style="list-style-type: none"> <li>• <b>Public Charitable Trusts:</b> Established for emergency relief and welfare purposes.</li> <li>• <b>Voluntary Contributions:</b> Not financed through taxpayer</li> </ul>

money directly.

- **Not Statutory Bodies:** Not created under the Constitution or an Act of Parliament.
- **Outside RTI Framework:** The government has maintained that PM CARES is not a “public authority.”

This classification limits parliamentary questioning under Rule 41 of Lok Sabha.

### **Rationale for Exclusion from Parliamentary Scrutiny**

1. **Legal Status:** Since these funds are not government-owned, they fall outside routine legislative oversight.
2. **Operational Flexibility:** Reduced procedural constraints allow faster response during disasters.
3. **Distinct Objectives:** Courts have recognised that funds like NDRF and PM CARES serve different purposes.

### **Concerns and Challenges**

#### **1. Transparency Deficit**

- Public donations create expectations of openness.
- Absence of CAG audit raises questions about financial scrutiny.

#### **2. Democratic Accountability**

- Parliamentary questions are key tools for executive oversight.
- Exclusion may weaken checks and balances.

#### **3. Ethical Governance**

- Funds chaired by public officials blur the line between public and private entities.
- Perception of opacity can erode public trust.

#### **4. Constitutional Debate**

- Raises questions related to **Article 12** (definition of “State”).
- Highlights the evolving nature of quasi-government institutions.

### **Arguments in Favour**

- Enables rapid mobilisation of resources during crises.
- Encourages philanthropic participation without bureaucratic delays.
- Avoids politicisation of humanitarian relief mechanisms.

### **Way Forward**

- **Voluntary Transparency:** Periodic public disclosure of contributions and expenditures.
- **Independent Audits:** Third-party audits to enhance credibility.
- **Clear Regulatory Framework:** Define accountability standards for quasi-public funds.

	<ul style="list-style-type: none"> <li>• <b>Parliamentary Briefings:</b> Non-binding disclosures to maintain democratic confidence.</li> </ul>
<b>Conclusion</b>	The debate over PM CARES reflects a broader governance challenge—balancing institutional autonomy with democratic accountability. While operational flexibility is essential during emergencies, sustained public trust depends on transparency. Strengthening disclosure mechanisms without undermining efficiency can help reconcile legal independence with the ethical demands of a modern democracy.

**Q5. Discuss the constitutional procedure for removal of the Lok Sabha Speaker. Examine how the Constitution balances accountability with independence of the office.**

**(GS Paper – 2: Parliament, State Legislature, Executive, Representation of People's Act)**

<b>Introduction</b>	The Speaker of the <b>Lok Sabha</b> occupies a pivotal constitutional position as the presiding officer and guardian of parliamentary procedures. While the office demands neutrality and independence, the Constitution also provides a mechanism for removal to ensure accountability.
<b>Body</b>	<p><b>Constitutional Basis</b></p> <ul style="list-style-type: none"> <li>• Governed by <b>Article 94 of the Constitution of India.</b></li> <li>• The Speaker vacates office if:             <ol style="list-style-type: none"> <li>1. He/she ceases to be a Member of Lok Sabha.</li> <li>2. Resigns by writing to the Deputy Speaker.</li> <li>3. Is removed by a resolution passed by a majority of all the then members (effective majority).</li> </ol> </li> </ul> <p><b>Procedure for Removal</b></p> <ol style="list-style-type: none"> <li>1. <b>Notice:</b> Minimum 14 days' prior notice.</li> <li>2. <b>Initiation:</b> Motion moved by Members of Lok Sabha.</li> <li>3. <b>Support Condition:</b> At least 50 Members must support the motion for it to be admitted.</li> <li>4. <b>Debate:</b> Discussion confined strictly to charges.</li> <li>5. <b>Voting:</b> Requires effective majority (majority of total membership excluding vacancies).</li> </ol> <p><b>Safeguards for Independence</b></p> <ul style="list-style-type: none"> <li>• Security of tenure.</li> <li>• Salary charged on the Consolidated Fund of India.</li> <li>• Conduct cannot be discussed except through a substantive motion.</li> <li>• Decisions on procedural matters are generally immune from judicial interference.</li> <li>• Votes only in case of a tie (casting vote).</li> </ul>

	<p><b>Significance</b></p> <ul style="list-style-type: none"> <li>The high threshold for removal prevents frequent political misuse while ensuring that the Speaker remains accountable to the House. Historically, although motions have been moved, no Speaker has been removed, reflecting institutional stability.</li> </ul>
<p><b>Conclusion</b></p>	<p>The removal mechanism under Article 94 represents a constitutional balance between accountability and autonomy. It preserves the dignity and neutrality of the Speaker while upholding parliamentary supremacy.</p>

**Q6. Critically examine the Supreme Court's judgement on the 'National Judicial Appointments Commission Act, 2014' with reference to the appointment of judges of higher judiciary in India.**

**(GS Paper II – Polity)**

<p><b>Introduction</b></p>	<p>The 99th Constitutional Amendment Act, 2014 and the National Judicial Appointments Commission (NJAC) Act were enacted to replace the collegium system for appointing judges to the Supreme Court and High Courts. In 2015, in the Fourth Judges Case, the Supreme Court struck down both as unconstitutional, holding that they violated the basic structure of the Constitution, particularly judicial independence. The judgement became a defining moment in the evolution of India's judicial appointments framework.</p>
<p><b>Body</b></p>	<p><b>Background and Salient Features of NJAC</b></p> <ul style="list-style-type: none"> <li>The NJAC sought to create a six-member body comprising the Chief Justice of India (Chairperson), two senior-most Supreme Court judges, the Union Law Minister, and two eminent persons nominated by a committee consisting of the Prime Minister, CJI and Leader of Opposition. The objective was to introduce transparency, accountability and broader participation in appointments, addressing concerns of opacity, lack of criteria and allegations of nepotism in the collegium system.</li> </ul> <p><b>Grounds for Striking Down NJAC</b></p> <p>The Supreme Court, by a 4:1 majority, invalidated the amendment and the Act on the following grounds:</p> <ol style="list-style-type: none"> <li><b>Violation of Basic Structure:</b> Judicial independence is part of the Constitution's basic structure. Inclusion of the executive and eminent persons was seen as compromising this independence.</li> <li><b>Dilution of Judicial Primacy:</b> The Court held that judicial appointments cannot be subject to executive influence, as this would undermine separation of powers.</li> <li><b>Risk of Political Interference:</b> The possibility of veto by non-</li> </ol>

	<p>judicial members was viewed as weakening institutional autonomy.</p> <p><b>Critical Evaluation</b></p> <ul style="list-style-type: none"> <li>The judgement strengthened constitutional supremacy and safeguarded judicial independence from potential executive overreach. However, critics argue that striking down a unanimously passed constitutional amendment reflected judicial overreach. Further, while acknowledging deficiencies in the collegium system, the Court did not institute structural reforms, thereby perpetuating concerns of opacity and limited accountability.</li> </ul>
<p><b>Conclusion</b></p>	<p>The NJAC verdict reaffirmed judicial independence as a constitutional cornerstone. Nevertheless, the continuing debate highlights the need for a reformed appointments mechanism that balances independence with transparency, accountability and inclusiveness, thereby enhancing the legitimacy of the higher judiciary.</p>

**Q7. Drone technology in India has evolved from experimental use to a structured governance tool. Examine how policy reforms and flagship schemes have transformed India's drone ecosystem and public service delivery.**

**(GS Paper II – Governance; GS Paper III – Science & Technology)**

<p><b>Introduction</b></p>	<p>Drone technology in India has transitioned from limited pilot applications to a mainstream governance instrument. Backed by progressive reforms such as the <b>Drone Rules, 2021</b>, Digital Sky platform, Production Linked Incentive (PLI) scheme, and flagship programmes like <b>SVAMITVA and Nam0 Drone Didi</b>, India has built a regulated and rapidly expanding drone ecosystem.</p>
<p><b>Body</b></p>	<p><b>Policy and Regulatory Transformation</b></p> <p>The <b>Drone Rules, 2021</b> significantly liberalised the sector by reducing compliance burden (forms reduced from 25 to 5), declaring nearly 90% airspace as Green Zone (up to 400 feet), and replacing traditional pilot licences with DGCA-certified Remote Pilot Certificates.</p> <p>As of February 2026:</p> <ul style="list-style-type: none"> <li>38,500+ drones registered (UIN)</li> <li>39,890 certified remote pilots</li> <li>244 DGCA-approved training organisations</li> </ul> <p>The <b>PLI scheme (₹120 crore)</b> and reduced GST (5%) have strengthened domestic manufacturing and lowered entry barriers.</p> <p><b>Transformation in Public Service Delivery</b></p> <ol style="list-style-type: none"> <li><b>Land Governance – SVAMITVA Scheme</b></li> </ol>

	<ul style="list-style-type: none"> <li>○ 3.28 lakh villages surveyed</li> <li>○ 2.76 crore property cards issued</li> <li>○ Improved land dispute resolution and financial inclusion</li> </ul> <p><b>2. Agriculture – Namo Drone Didi</b></p> <ul style="list-style-type: none"> <li>○ 1,094 drones distributed to women SHGs</li> <li>○ Enhanced precision agriculture and rural livelihoods</li> </ul> <p><b>3. Infrastructure &amp; Monitoring</b></p> <ul style="list-style-type: none"> <li>○ Mandatory drone monitoring for highways (NHAI)</li> <li>○ Railway inspection and surveillance by RPF</li> </ul> <p><b>4. Disaster Management &amp; Defence</b></p> <ul style="list-style-type: none"> <li>○ Real-time disaster assessment (NECTAR)</li> <li>○ Strategic defence operations enhancing border surveillance</li> </ul>
<b>Conclusion</b>	<p>India's drone ecosystem reflects a model of regulatory liberalisation combined with institutional capacity building. By integrating drones into governance, agriculture, infrastructure, and defence, India is advancing efficiency, transparency, and technological self-reliance. Continued investment in skill development and indigenous manufacturing will position India as a global leader in unmanned aerial systems.</p>

**Q8. The creation of the Frontier Nagaland Territorial Authority (FNTA) reflects India's approach of asymmetric federalism in the Northeast. Discuss.**

**(GS Paper II – Polity & Governance)**

<b>Introduction</b>	<p>On February 5, 2026, the Centre signed a tripartite MoU with the Nagaland Government and the Eastern Nagaland Peoples' Organisation (ENPO) to establish the Frontier Nagaland Territorial Authority (FNTA). The arrangement grants devolutionary autonomy to six eastern districts while retaining constitutional safeguards under Article 371(A). It exemplifies India's model of asymmetric federalism.</p>
<b>Body</b>	<p><b>1. Rationale Behind FNTA</b></p> <ul style="list-style-type: none"> <li>• <b>Historical Marginalisation:</b> Eastern Nagaland tribes alleged political and economic neglect since the formation of Nagaland in 1963.</li> <li>• <b>Demand for Statehood:</b> ENPO demanded a separate "Frontier Nagaland" State (memorandum in 2010).</li> <li>• <b>Political Pressure:</b> Election boycott calls (2021–22; intensified in 2024) signalled alienation.</li> <li>• <b>Strategic Concerns:</b> The region borders Myanmar, making instability a security risk.</li> </ul>

- **Failure of Earlier Measures:** Financial packages (₹500 crore) failed to address political aspirations.

## 2. Key Features of FNTA

- **Semi-Autonomous Governance:** Mini-Secretariat headed by senior officer.
- **Devolution of 46 Subjects:** Land use, agriculture, rural development, infrastructure, etc.
- **Financial Autonomy:** Development funds allocated proportionally by population and area; initial funding by MHA.
- **Constitutional Safeguard:** No alteration to Article 371(A).

## 3. Significance

- **Asymmetric Federalism:** Middle path between Statehood and district administration.
- **Cooperative Federalism:** Tripartite consensus between Centre, State and ENPO.
- **Security–Development Nexus:** Stability in a Myanmar-border buffer region.
- **Template for Future:** Potential model for similar autonomy demands.

### Challenges

- Effective implementation of devolved powers.
- Avoiding administrative overlaps with State Government.
- Managing expectations of other identity-based movements.

### Way Forward

- Clear institutional mechanisms for coordination.
- Transparent financial devolution.
- Periodic review of performance and grievance redressal mechanisms.

### Conclusion

The creation of the Frontier Nagaland Territorial Authority reflects India's pragmatic application of asymmetric federalism to address regional aspirations within the constitutional framework. By granting administrative and financial autonomy to eastern districts without altering Article 371(A), the Centre has balanced development concerns, security imperatives, and national unity. The long-term success of this model will depend on effective implementation, fiscal empowerment, and sustained political cooperation among all stakeholders.

**Q9. The Sabarimala case represents a conflict between religious autonomy and constitutional morality. Discuss the significance of the Anti-Exclusion Test in resolving this conflict.**

**(GS Paper II – Polity and Governance)**

<b>Introduction</b>	The Sabarimala case (Indian Young Lawyers Association vs State of Kerala, 2018) represents a major constitutional debate between religious freedom and fundamental rights. The Supreme Court allowed entry of women into the Sabarimala temple and introduced new constitutional reasoning, including the Anti-Exclusion Test.
<b>Body</b>	<p><b>Essential Religious Practices Doctrine and its Limitations</b></p> <p>Traditionally, courts used the Essential Religious Practices (ERP) doctrine to decide whether a religious practice deserved constitutional protection.</p> <p>However, ERP doctrine has limitations:</p> <ul style="list-style-type: none"><li>• Courts interpret religious beliefs, which may undermine secularism.</li><li>• It lacks objective criteria.</li><li>• It may allow discriminatory practices if declared essential.</li></ul> <p>Thus, ERP doctrine was inadequate in protecting individual dignity.</p> <p><b>Anti-Exclusion Test and its Significance</b></p> <p>Justice Chandrachud proposed the Anti-Exclusion Test as a constitutional alternative. Its key features include:</p> <ol style="list-style-type: none"><li><b>1. Protection of Individual Dignity</b><ul style="list-style-type: none"><li>• The test focuses on whether religious practices violate dignity and equality.</li></ul></li><li><b>2. Shift from Theology to Constitution</b><ul style="list-style-type: none"><li>• Courts do not decide religious essentiality but examine constitutional impact.</li></ul></li><li><b>3. Protection of Fundamental Rights</b><p>The test ensures religious freedom does not violate:</p><ul style="list-style-type: none"><li>• Equality (Article 14)</li><li>• Freedom (Article 21)</li><li>• Religious freedom (Article 25)</li></ul></li><li><b>4. Promotes Constitutional Morality</b><ul style="list-style-type: none"><li>• The test ensures constitutional values prevail over discriminatory customs.</li></ul></li></ol> <p><b>Broader Constitutional Impact</b></p> <p>The anti-exclusion test will influence future cases involving:</p> <ul style="list-style-type: none"><li>• Religious exclusion</li></ul>

	<ul style="list-style-type: none"> <li>• Gender justice</li> <li>• Religious autonomy vs fundamental rights</li> </ul> <p>It strengthens constitutional supremacy.</p>
<b>Conclusion</b>	<p>The Anti-Exclusion Test represents a progressive constitutional approach. It protects religious freedom while ensuring dignity, equality, and justice. It strengthens constitutional morality and ensures that religious practices remain consistent with constitutional principles.</p>

# International Relations

**Q10. “The India–US Trade Deal represents both an economic opportunity and a strategic test for India’s foreign policy.” Examine the opportunities and challenges associated with the tariff reduction, and suggest measures to maximise its benefits.**

**(GS Paper II – International Relations – India-USA Trade Deal)**

<b>Introduction</b>	<p>The reduction of United States tariffs on Indian goods to <b>18%</b> marks a significant shift in bilateral trade relations. Beyond a commercial arrangement, the deal reflects deepening geopolitical alignment in the Indo-Pacific and the restructuring of global supply chains. However, it simultaneously tests India’s ability to balance economic gains with strategic autonomy.</p>
<b>Body</b>	<p><b>Opportunities</b></p> <ol style="list-style-type: none"> <li><b>1. Boost to Export Competitiveness</b> - Lower tariffs enhance the price competitiveness of Indian sectors such as textiles, pharmaceuticals, engineering goods, and gems &amp; jewellery, potentially expanding market share in the world’s largest consumer economy.</li> <li><b>2. Friendshoring and Supply Chain Diversification</b> - As firms seek alternatives to China, India can position itself as a trusted manufacturing hub, attracting foreign investment and technology transfers.</li> <li><b>3. Strategic Technology Collaboration</b> - Partnerships under initiatives like critical and emerging technologies can accelerate India’s progress in semiconductors, artificial intelligence, and defence manufacturing.</li> <li><b>4. Energy Security Partnerships</b> - Increased imports of US energy diversify supply sources and reduce overdependence on volatile regions.</li> </ol>

	<p><b>Challenges</b></p> <ol style="list-style-type: none"> <li><b>1. Strategic Autonomy Concerns</b> - Reducing Russian oil imports may strain long-standing ties with Moscow, challenging India's multi-alignment doctrine.</li> <li><b>2. Domestic Sector Vulnerability</b> - Greater market access for US agricultural products could expose small farmers and MSMEs to subsidised competition.</li> <li><b>3. Transactional Nature of Trade Diplomacy</b> - Reciprocal concessions suggest a quid-pro-quo framework, potentially limiting India's policy flexibility.</li> <li><b>4. Continued Non-Tariff Barriers</b> - Sanitary standards, intellectual property pressures, and digital trade disagreements may still restrict Indian exports.</li> </ol> <p><b>Way Forward</b></p> <ul style="list-style-type: none"> <li>• Adopt calibrated tariff liberalisation with safeguards for sensitive sectors.</li> <li>• Accelerate manufacturing competitiveness under Make in India.</li> <li>• Diversify export markets to avoid overdependence on a single partner.</li> <li>• Invest in renewable energy to maintain strategic flexibility.</li> <li>• Strengthen trade negotiation capacity to secure balanced agreements.</li> </ul>
<b>Conclusion</b>	<p>The India–US trade deal is a strategic milestone that can propel India's economic transformation if leveraged prudently. The true challenge lies in harmonising economic integration with strategic independence, ensuring that India emerges not merely as a trading partner but as a decisive global economic power.</p>

**Q11. In the context of the Ukraine war and US pressure on Russian oil imports, examine how India balances its relations with Russia and the United States. Discuss the challenges involved and suggest a way forward.**

**(GS Paper II – International Relations)**

<b>Introduction</b>	<p>India's foreign policy is guided by <i>strategic autonomy and multi-alignment</i>. The US claim that India has agreed to stop buying Russian oil, in the backdrop of the Ukraine war, has brought into focus India's challenge of balancing its traditional partnership with Russia and its expanding strategic and economic engagement with the United States.</p>
<b>Body</b>	<p><b>India's Engagement with Russia and the US</b></p> <ul style="list-style-type: none"> <li>• Russia remains a critical partner for India in <b>defence and energy security</b>. Nearly 60% of India's military platforms are of</li> </ul>

	<p>Russian origin, and discounted Russian crude helped India manage inflation and ensure affordable energy supplies after 2022. Russia has also been a reliable source of advanced defence technologies.</p> <ul style="list-style-type: none"><li>• At the same time, the <b>United States is India's largest trading partner</b>, a major investor, and a key technology and strategic partner. Initiatives such as iCET, Indo-Pacific cooperation, and growing services and high-technology trade are central to India's long-term economic and strategic interests.</li></ul> <p><b>Challenges in the Current Geopolitical Context</b></p> <ul style="list-style-type: none"><li>• India faces multiple constraints. Russia's increasing economic dependence on China may limit its strategic neutrality in a Sino-Indian crisis. Heavy defence dependence on Russia creates vulnerabilities in spares and maintenance, while rapid diversification risks short-term operational readiness. Economically, replacing discounted Russian oil with costlier alternatives may increase inflation and widen the Current Account Deficit. Diplomatically, sustained ambiguity in great-power rivalries could affect India's credibility as a Global South leader.</li></ul> <p><b>Way Forward</b></p> <ul style="list-style-type: none"><li>• India must continue a calibrated balancing strategy by accelerating defence indigenisation under <i>Atmanirbhar Bharat</i>, diversifying energy sources through a portfolio approach, expanding Strategic Petroleum Reserves, and leveraging platforms like Quad and BRICS to maintain strategic space.</li></ul>
<b>Conclusion</b>	India's objective is not exclusive alignment but interest-based engagement. By combining diversification, indigenisation, and pragmatic diplomacy, India can manage competing pressures while preserving strategic autonomy in a fragmented global order.

**Q12. The India–Malaysia Comprehensive Strategic Partnership reflects India's growing engagement with Southeast Asia in an evolving Indo-Pacific order. Discuss the significance of the partnership and the challenges that may affect its long-term potential.**

**(GS Paper II – International Relations)**

<b>Introduction</b>	India and Malaysia reaffirmed their Comprehensive Strategic Partnership during the Prime Minister's 2026 visit, highlighting shared interests in trade, security, digital transformation, and regional stability. The partnership aligns with India's Act East Policy and Indo-Pacific vision.
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<b>Body</b>	<p><b>Significance</b></p> <ol style="list-style-type: none"> <li><b>1. Strategic Importance</b> <ul style="list-style-type: none"> <li>• Enhances India’s presence in Southeast Asia.</li> <li>• Supports a free and rules-based Indo-Pacific.</li> </ul> </li> <li><b>2. Economic Opportunities</b> <ul style="list-style-type: none"> <li>• Expansion in semiconductors, digital economy, and renewable energy.</li> <li>• Local currency settlement reduces forex risks.</li> </ul> </li> <li><b>3. Defence and Security</b> <ul style="list-style-type: none"> <li>• Joint exercises and counter-terror cooperation strengthen regional security.</li> </ul> </li> <li><b>4. Supply Chain Resilience</b> <ul style="list-style-type: none"> <li>• Helps diversify global supply chains away from concentrated geographies.</li> </ul> </li> <li><b>5. Cultural and Diaspora Links</b> <ul style="list-style-type: none"> <li>• Indian community acts as a bridge for deeper engagement.</li> </ul> </li> </ol> <p><b>Challenges</b></p> <ul style="list-style-type: none"> <li>• Competition from China in ASEAN.</li> <li>• Trade imbalances and regulatory barriers.</li> <li>• Palm oil disputes and environmental concerns.</li> <li>• Geopolitical pressures within the Indo-Pacific.</li> <li>• Need for faster implementation of agreements.</li> </ul> <p><b>Way Forward</b></p> <ul style="list-style-type: none"> <li>• Accelerate trade agreements and digital partnerships.</li> <li>• Expand maritime cooperation.</li> <li>• Promote resilient supply chains.</li> <li>• Enhance people-to-people exchanges.</li> <li>• Align cooperation with emerging technologies.</li> </ul>
<b>Conclusion</b>	<p>The India–Malaysia partnership is evolving from economic engagement to a multidimensional strategic relationship. Sustained cooperation and effective execution can make it a cornerstone of India’s Southeast Asia strategy and contribute to regional stability.</p>

**Q13. The India–U.S. Bilateral Trade Agreement reflects a calibrated approach to trade liberalization. Discuss its significance for India while examining the challenges it may pose.**

**(GS Paper II: Bilateral relations, trade diplomacy, economic partnerships)**

<b>Introduction</b>	<p>The India–U.S. Bilateral Trade Agreement marks a significant advancement in India’s trade diplomacy by securing preferential access</p>
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to a USD 30-trillion U.S. market. Through tariff rationalisation, zero-duty provisions, and enhanced digital cooperation, the agreement aims to strengthen India's export competitiveness while safeguarding sensitive domestic sectors.

**Body**

**Significance for India**

**1. Boost to Export Competitiveness**

- Reduction of reciprocal tariffs (earlier up to 50%) enhances price advantage.
- Preferential treatment creates a tariff differential over competitors such as China and Vietnam.
- Expands opportunities in textiles, leather, gems & jewellery, machinery, and pharmaceuticals.

**2. Support for Manufacturing and Employment**

- Zero-duty access for large volumes of industrial exports strengthens "Make in India".
- Labour-intensive sectors are likely to generate employment and promote MSME growth.
- Access to intermediate goods improves participation in global value chains.

**3. Balanced Agricultural Liberalisation**

- Zero-duty access for key agricultural exports improves farmer incomes.
- Sensitive sectors like dairy and poultry remain protected through TRQs, quotas, and phased tariff reductions.

**4. Technology and Digital Trade Gains**

- Facilitates access to semiconductors, AI chips, and high-performance computing.
- Reduces non-tariff barriers via conformity assessments.
- Encourages innovation, investment, and growth in digitally delivered services.

**5. Strategic and Geopolitical Value**

- Deepens India-U.S. economic partnership amid supply-chain realignments.
- Enhances India's credibility as a reliable global trade partner.

**Challenges**

- Risk of import surge affecting domestic industries.
- MSMEs may struggle with stringent quality and compliance requirements.
- Potential overdependence on a single export destination.
- Technology cooperation must be balanced with national security

	<p>concerns.</p> <p><b>Way Forward</b></p> <ul style="list-style-type: none"> <li>• Upgrade manufacturing quality and competitiveness.</li> <li>• Diversify export markets to reduce concentration risk.</li> <li>• Provide adjustment support to MSMEs and farmers.</li> <li>• Invest in high-technology ecosystems.</li> </ul>
<b>Conclusion</b>	<p>The agreement reflects a pragmatic strategy that balances liberalization with protection. With complementary domestic reforms, it can accelerate export-led growth and position India as a key player in global trade.</p>

**Q14. India–Greece relations have gained renewed momentum in recent years, particularly in defence and maritime cooperation. Examine the strategic significance of this partnership and discuss the challenges that may limit its full potential.**

**(GS Paper II – International Relations)**

<b>Introduction</b>	<p>India and Greece elevated their ties to a <i>Strategic Partnership</i> in 2023. The recent signing of a <b>Joint Declaration of Intent (JDI) on defence industrial cooperation</b> marks a shift toward structured, long-term engagement. The partnership reflects growing convergence between two maritime democracies positioned at opposite ends of the Indo-Pacific–Mediterranean arc.</p>
<b>Body</b>	<p><b>Strategic Significance</b></p> <ul style="list-style-type: none"> <li>• First, <b>defence industrial cooperation</b> aligns India’s <i>Aatmanirbhar Bharat</i> with Greece’s defence reforms under Agenda 2030, enabling co-development, diversification of defence suppliers, and long-term military collaboration.</li> <li>• Second, <b>maritime security cooperation</b> has deepened with Greece posting a liaison officer at IFC-IOR, strengthening Maritime Domain Awareness (MDA). Both countries support a rules-based order and freedom of navigation.</li> <li>• Third, Greece serves as a <b>gateway to Europe</b>, especially under the proposed India–Middle East–Europe Economic Corridor (IMEC). Its strategic location and strong shipping sector enhance connectivity and trade prospects.</li> <li>• Fourth, the partnership has <b>geopolitical value</b>, providing India strategic leverage amid the Turkey–Pakistan axis and expanding its presence in the Mediterranean.</li> </ul> <p><b>Challenges</b></p>

	<ul style="list-style-type: none"> <li>• Despite potential, bilateral trade remains modest (~USD 2 billion) and lacks diversification. Connectivity gaps, absence of direct shipping links, and China’s control of Piraeus port pose strategic concerns. Institutional mechanisms such as a 2+2 dialogue are yet to be formalised.</li> </ul>
<b>Conclusion</b>	India–Greece ties are transitioning from symbolic goodwill to structured strategic cooperation. With improved connectivity, economic diversification, and institutional depth, this partnership can become a vital bridge linking the Indo-Pacific and Europe.

**Q15. Examine the significance of the India–France Special Global Strategic Partnership in shaping India’s foreign policy and technological future.**

**(GS II – International Relations - India–France relations)**

<b>Introduction</b>	India and France elevated bilateral relations to a Special Global Strategic Partnership in 2026, marking a qualitative transformation in cooperation across defence, technology, and global governance amid shifting geopolitical dynamics.
<b>Body</b>	<p><b>Key Dimensions</b></p> <ol style="list-style-type: none"> <li><b>1. Strategic &amp; Geopolitical</b> <ul style="list-style-type: none"> <li>• Supports multipolar global order.</li> <li>• Strengthens India’s strategic autonomy.</li> <li>• Enhances Indo-Pacific cooperation.</li> </ul> </li> <li><b>2. Defence Cooperation</b> <ul style="list-style-type: none"> <li>• Transition from buyer–seller to co-production.</li> <li>• Joint manufacturing (H125 helicopters, missiles).</li> <li>• Technology transfer and indigenous defence capability.</li> </ul> </li> <li><b>3. Technology &amp; AI Leadership</b> <ul style="list-style-type: none"> <li>• Cooperation in ethical AI governance.</li> <li>• Joint research institutions in AI and digital science.</li> <li>• Builds technological sovereignty.</li> </ul> </li> <li><b>4. Economic &amp; Innovation Partnership</b> <ul style="list-style-type: none"> <li>• Startup collaboration and innovation networks.</li> <li>• Improved investment climate via DTAA amendment.</li> <li>• Critical minerals cooperation ensures supply security.</li> </ul> </li> </ol> <p><b>Challenges</b></p> <ul style="list-style-type: none"> <li>• Technological gap with US and China.</li> <li>• Export control and IP barriers.</li> <li>• European economic uncertainties.</li> </ul>

	<p><b>Way Forward</b></p> <ul style="list-style-type: none"> <li>• Expand joint R&amp;D ecosystems.</li> <li>• Institutionalise AI regulatory cooperation.</li> <li>• Strengthen trilateral Indo-Pacific partnerships.</li> </ul>
<p><b>Conclusion</b></p>	<p>The upgraded partnership reflects India’s evolving foreign policy aimed at diversified strategic engagement. By deepening ties with France, India enhances technological capability, defence self-reliance, and global strategic influence in an increasingly complex world order.</p>

**Q16. India’s participation in the Pax Silica alliance reflects both an economic necessity and a strategic recalibration. Discuss.**

**(GS Paper II – International Relations - Bilateral, regional and global groupings and agreements involving India)**

<p><b>Introduction</b></p>	<p>India’s entry into the U.S.-led <b>Pax Silica</b> alliance in 2026 signals a shift towards <b>technology diplomacy</b> to secure supply chains for <b>critical minerals, semiconductors, and AI infrastructure</b> amid intensifying geo-economic competition.</p>
<p><b>Body</b></p>	<p><b>Economic Necessity</b></p> <ol style="list-style-type: none"> <li><b>Supply Chain Security</b> <ul style="list-style-type: none"> <li>○ China’s dominance in processing <b>rare earth elements</b> exposes India to disruptions; Pax Silica supports <b>de-risking</b> through diversified sourcing and trusted supply routes.</li> </ul> </li> <li><b>Industrial Development</b> <ul style="list-style-type: none"> <li>○ Complements India’s <b>Semiconductor Mission</b> and <b>IndiaAI Mission</b> by enabling access to equipment, raw materials, investments, and advanced manufacturing partnerships.</li> </ul> </li> <li><b>Global Value Chain Integration</b> <ul style="list-style-type: none"> <li>○ India’s large market and skilled workforce can make it a major node in “<b>China+1</b>” manufacturing and technology supply chains, boosting exports and jobs.</li> </ul> </li> </ol> <p><b>Strategic Recalibration</b></p> <ol style="list-style-type: none"> <li><b>Technological Sovereignty</b> <ul style="list-style-type: none"> <li>○ Participation strengthens India’s leverage in shaping standards on <b>AI infrastructure, security audits, and export controls</b>, reducing long-term dependency.</li> </ul> </li> <li><b>Geopolitical Signalling</b> <ul style="list-style-type: none"> <li>○ Reflects closer alignment with democratic coalitions in</li> </ul> </li> </ol>

	<p>the context of <b>U.S.–China technology rivalry</b>, enhancing India’s role in a multipolar tech order.</p> <p><b>3. Balancing Strategic Autonomy</b></p> <ul style="list-style-type: none"> <li>India must retain flexibility for <b>issue-based alignments</b>, ensuring alliance commitments do not restrict independent foreign policy choices.</li> </ul> <p><b>Challenges</b></p> <ul style="list-style-type: none"> <li><b>Risk of Chinese retaliation</b> (trade friction, upstream input restrictions).</li> <li><b>Compliance burden</b> on Indian firms due to “trusted ecosystem” security requirements.</li> <li><b>Policy friction</b> over subsidies, procurement preferences, and technology-transfer guardrails.</li> </ul>
<p><b>Conclusion</b></p>	<p>Pax Silica offers India major gains in <b>economic security and technological capability</b>, but success depends on building domestic processing/manufacturing capacity while preserving <b>strategic autonomy</b> through calibrated diplomacy.</p>

**Q17. India–Canada relations witnessed a major diplomatic crisis in 2023 but are now moving towards normalization. Examine the causes of the deterioration and discuss the factors driving the recent reset in bilateral relations. Also analyse the significance of India–Canada ties for India’s strategic and economic interests.**

**(GS Paper 2 – International Relations)**

<p><b>Introduction</b></p>	<p>India and Canada share long-standing bilateral relations based on democratic values, trade, diaspora linkages, and strategic cooperation. However, ties deteriorated sharply in 2023 following allegations by Canada regarding India’s involvement in the killing of a Khalistani separatist. Since 2025, both countries have taken steps to restore diplomatic engagement and cooperation.</p>
<p><b>Body</b></p>	<p><b>Causes of Deterioration in India–Canada Relations</b></p> <p><b>1. Nijjar Assassination Controversy (2023)</b></p> <ul style="list-style-type: none"> <li>Canada alleged Indian government involvement in the killing of Khalistani separatist Hardeep Nijjar.</li> <li>India strongly rejected the allegations as “absurd and motivated”.</li> </ul> <p><b>2. Diplomatic Escalation</b></p> <ul style="list-style-type: none"> <li>Both countries expelled diplomats and withdrew High Commissioners.</li> <li>Visa services and diplomatic engagement were restricted.</li> </ul>

### 3. Khalistan Issue and Security Concerns

- India raised concerns about Canada being a safe haven for extremist elements.
- Differences over handling of separatist activities created mistrust.

### Factors Leading to the Reset of Relations

#### 1. Leadership Change in Canada

- Prime Minister Mark Carney adopted a pragmatic approach and separated legal investigation from diplomatic ties.

#### 2. Diplomatic Engagement and Dialogue

- Meetings between leaders at the G7 Summit and restoration of High Commissioners.
- Creation of a framework under National Security Advisors to address security concerns.

#### 3. Economic and Strategic Interests

- Negotiations for Comprehensive Economic Partnership Agreement (CEPA).
- Trade reached about \$30.8 billion, with a target of \$70 billion by 2030.

### Significance of India–Canada Relations for India

#### 1. Economic Importance

- Canada is a major source of fertilizers, energy, and critical minerals.
- Important investor and trade partner.

#### 2. Strategic and Geopolitical Importance

- Canada is a member of G7 and Five Eyes intelligence alliance.
- Cooperation in Indo-Pacific and emerging technologies.

#### 3. Diaspora and Educational Linkages

- Canada hosts over 1.8 million Indo-Canadians.
- Large number of Indian students studying in Canada strengthens people-to-people ties.

#### 4. Energy Security

- Canada is a reliable supplier of oil, LNG, and critical minerals needed for India's energy transition.

### Challenges / Concerns

- Trust deficit due to past diplomatic tensions
- Issue of extremist activities and security concerns
- Political sensitivities related to diaspora and domestic politics

	<p><b>Way Forward</b></p> <ul style="list-style-type: none"> <li>• Strengthen diplomatic dialogue and mutual trust</li> <li>• Enhance cooperation in trade, energy, and technology</li> <li>• Address security concerns through institutional mechanisms</li> <li>• Promote people-to-people and educational exchanges</li> </ul>
<p><b>Conclusion</b></p>	<p>India–Canada relations are strategically important due to economic complementarities, diaspora linkages, and geopolitical convergence. The recent diplomatic reset provides an opportunity to rebuild trust and strengthen cooperation in trade, security, and global governance, contributing to stability and mutual growth.</p>

# Economy

**Q18. The Union Budget 2026–27 is described as a Yuva Shakti-driven Budget inspired by the principle of Kartavya. Examine how the three Kartavya outlined in the Budget seek to balance economic growth, human capability building, and inclusive development.**

**(GS Paper III: Indian Economy and Planning, Budget, Growth, Development and Employment)**

<p><b>Introduction</b></p>	<p>The Union Budget 2026–27 marks a shift towards duty-based governance by framing public policy around three Kartavya—accelerating growth, fulfilling aspirations, and ensuring Sabka Sath, Sabka Vikas. It positions youth as drivers of growth while embedding inclusion and resilience into India’s economic strategy.</p>
<p><b>Body</b></p>	<p><b>Kartavya I: Accelerating and Sustaining Economic Growth</b></p> <p>The Budget prioritises productivity, competitiveness, and resilience through manufacturing expansion, infrastructure push, energy security, and logistics reforms. Initiatives such as Biopharma Shakti, textile sector integration, City Economic Regions, high-speed rail corridors, and increased public capital expenditure strengthen India’s industrial base and reduce supply-chain vulnerabilities.</p> <p><b>Kartavya II: Fulfilling Aspirations and Building Capacity</b></p> <p>Human capital formation is central to the Budget. Medical hubs, veterinary sector expansion, creative economy support, girls’ hostels, tourism skilling, and the Khelo India Mission aim to enhance employability, health outcomes, and cultural industries. These measures convert demographic potential into productive economic participation.</p>

	<p><b>Kartavya III: Sabka Sath, Sabka Vikas</b></p> <p>The Budget advances inclusive development through digital agriculture tools like Bharat Vistaar, women-led Self-Help Entrepreneur Marts, mental health infrastructure expansion, and targeted development of Purvodaya and North-Eastern regions. Regional balance and social equity are integrated into growth planning.</p>
<p><b>Conclusion</b></p>	<p>By aligning growth acceleration with capacity building and inclusion, the three Kartavya framework transforms the Budget from a fiscal statement into a developmental vision, reinforcing India's path towards Viksit Bharat while maintaining fiscal discipline.</p>

**Q19. How are recent Budgetary interventions and enhanced access to the European Union market likely to transform the AYUSH sector from a domestic public health programme into a globally competitive industry? Critically examine the opportunities and challenges involved.**

**(GS Paper III Economy & Science & Technology)**

<p><b>Introduction</b></p>	<p>The Union Budget 2026–27 and the India–EU Free Trade Agreement (FTA) mark a decisive shift in India's approach to AYUSH, seeking to reposition it from a welfare-oriented, domestic healthcare adjunct to a globally integrated economic and knowledge sector.</p>
<p><b>Body</b></p>	<p><b>Budgetary Boost and Institutional Expansion</b></p> <ul style="list-style-type: none"> <li>• The 2026–27 Budget raised AYUSH allocation to ₹4,408 crore, reflecting a long-term commitment to scale, standardisation, and research. The proposal to establish <b>three new All India Institutes of Ayurveda</b>, on the lines of AIIMS, signals an effort to institutionalise traditional medicine through patient care, advanced research, and professional training. Simultaneously, funding for upgrading the <b>WHO Global Traditional Medicine Centre at Jamnagar</b> positions India as a global norm-setter in traditional medicine documentation and practice.</li> <li>• The <b>66% hike in the National AYUSH Mission</b> strengthens co-location of AYUSH services within modern hospitals, upgrades pharmacies and drug-testing laboratories, and reorients AYUSH towards preventive healthcare. The introduction of <b>Bharat-VISTAAR</b>, a multilingual AI assistant, integrates digital governance by supporting medicinal plant farmers with real-time agronomic advice, market intelligence, and export certification.</li> </ul> <p><b>EU Market Access and Global Integration</b></p> <ul style="list-style-type: none"> <li>• The India–EU FTA substantially lowers entry barriers for</li> </ul>

	<p>AYUSH professionals and products. Recognition of Indian qualifications in EU states without specific traditional medicine regulation allows Indian practitioners to offer services legally. Mutual recognition of laboratory testing and safety certifications reduces export friction, while acknowledgement of the <b>Traditional Knowledge Digital Library (TKDL)</b> safeguards India’s intellectual heritage from biopiracy.</p> <p><b>Opportunities and Challenges</b></p> <ul style="list-style-type: none"> <li>Economically, the sector is projected to reach <b>\$26.5 billion by 2026</b>, driven largely by startups and MSMEs. However, global integration also exposes AYUSH to heightened scrutiny. Concerns regarding scientific validation, presence of heavy metals, regulatory credibility, and controversies over “mixopathy” raise questions about patient safety and professional boundaries.</li> </ul>
<b>Conclusion</b>	<p>While budgetary support and EU access can globalise AYUSH and generate economic growth, sustained success will depend on rigorous evidence generation, regulatory discipline, and ethical integration with modern medicine. The current push thus represents both an opportunity and a test of institutional maturity for India’s traditional healthcare systems.</p>

**Q20. India’s aviation sector has emerged as the world’s third-largest domestic market, yet recent operational failures expose deep structural vulnerabilities. Examine the systemic challenges facing India’s aviation sector and suggest reforms to ensure safety, competition and sustainable growth.**

**(GS Paper III (Infrastructure, Transport, Economic Development, Regulatory Framework))**

<b>Introduction</b>	<p>India’s aviation sector, now the <b>third-largest domestic aviation market globally</b>, has witnessed rapid fleet expansion and rising passenger traffic. However, recent operational disruptions, safety lapses, and financial stress among major carriers have revealed structural weaknesses beneath this growth trajectory.</p>
<b>Body</b>	<p><b>Systemic Challenges</b></p> <ol style="list-style-type: none"> <li><b>Pilot Shortage and Human Resource Constraints</b> - Implementation of revised Flight Duty Time Limitation (FDTL) norms exposed inadequate pilot strength. The pilot-to-aircraft ratio remains below global benchmarks, while training capacity, simulator availability, and high certification costs restrict supply.</li> <li><b>Regulatory Capacity Deficit</b> - The Directorate General of Civil</li> </ol>

	<p>Aviation (DGCA) faces manpower shortages and increasing oversight burdens, resulting in reactive rather than preventive regulation.</p> <ol style="list-style-type: none"> <li>3. <b>Market Concentration (Duopoly Structure)</b> - IndiGo and the Air India group together control nearly 90% of domestic traffic. Such concentration makes the system vulnerable, as disruptions in one airline lead to nationwide capacity contraction.</li> <li>4. <b>Infrastructure and Regional Imbalances</b> - Tier-2 and Tier-3 cities remain dependent on limited carriers. Airport congestion, limited slots, and weak regional viability undermine connectivity.</li> <li>5. <b>Financial and Cost Pressures</b> - Volatility in Aviation Turbine Fuel (ATF) prices, currency fluctuations, and thin profit margins heighten systemic fragility.</li> <li>6. <b>Safety and Operational Risks</b> - Rising safety violation notices and near-total crew utilisation reduce shock-absorption capacity.</li> </ol> <p><b>Reform Measures</b></p> <ul style="list-style-type: none"> <li>• Expand pilot training ecosystem and ease simulator bottlenecks.</li> <li>• Strengthen DGCA staffing and independent oversight mechanisms.</li> <li>• Promote competition through regional carrier support and rational slot allocation.</li> <li>• Bring ATF under GST to reduce cost volatility.</li> <li>• Build spare crew and operational buffers aligned with global standards.</li> </ul>
<b>Conclusion</b>	

**Q21. AgriStack has been described as the “next UPI” for agriculture in India. Examine its potential benefits and associated challenges.**

**(GS Paper III – Agriculture)**

<b>Introduction</b>	<p>AgriStack is a Digital Public Infrastructure launched in 2024 to create a unified digital ecosystem for Indian agriculture. By assigning farmers a unique digital identity and integrating agricultural datasets, it seeks to enable data-driven policymaking, targeted welfare delivery, and improved farm productivity.</p>
<b>Body</b>	<p><b>Significance and Potential Benefits</b></p> <ol style="list-style-type: none"> <li>1. <b>Targeted Service Delivery:</b> <ul style="list-style-type: none"> <li>• Integration with Direct Benefit Transfer and MSP procurement can reduce leakages and ensure subsidies reach genuine beneficiaries.</li> </ul> </li> </ol>

	<p><b>2. Data-driven Agriculture:</b></p> <ul style="list-style-type: none"> <li>Real-time access to crop, land, and weather data enables customised advisories, improving productivity and resilience.</li> </ul> <p><b>3. Financial Inclusion:</b></p> <ul style="list-style-type: none"> <li>Verified farmer databases can enhance access to institutional credit and crop insurance, reducing dependence on informal lending.</li> </ul> <p><b>4. Governance Efficiency:</b></p> <ul style="list-style-type: none"> <li>Digitisation minimizes paperwork, speeds approvals, and improves transparency in scheme implementation.</li> </ul> <p><b>5. Technological Transformation:</b></p> <ul style="list-style-type: none"> <li>Platforms such as Bharat-VISTAAR demonstrate the growing role of AI in agriculture, potentially bridging knowledge gaps for small farmers.</li> </ul> <p><b>Challenges</b></p> <ul style="list-style-type: none"> <li><b>Data Privacy Risks:</b> Large-scale aggregation of farmer data raises concerns about misuse and surveillance.</li> <li><b>Digital Divide:</b> Small and marginal farmers may lack digital literacy or internet access.</li> <li><b>Federal Coordination:</b> Since land is a State subject, effective implementation requires strong Centre–State cooperation.</li> <li><b>Exclusion Errors:</b> Faulty data could lead to denial of benefits.</li> </ul> <p><b>Way Forward</b></p> <ul style="list-style-type: none"> <li>India must establish a robust data protection framework, adopt consent-based data sharing, invest in rural digital infrastructure, and strengthen grievance redressal mechanisms.</li> </ul>
<p><b>Conclusion</b></p>	<p>If implemented with adequate safeguards, AgriStack can replicate the transformational impact of UPI by making Indian agriculture more efficient, transparent, and farmer-centric, thereby supporting sustainable rural growth.</p>

**Q22. Infrastructure spending has emerged as a key priority in recent Union Budgets.**

**Examine its significance and limitations in addressing India's economic challenges.**

**(GS III – Indian Economy & Public Finance)**

<p><b>Introduction</b></p>	<p>Post-pandemic Union Budgets have emphasised infrastructure investment, particularly in roads and railways, as a strategy to accelerate economic recovery and long-term growth.</p>
<p><b>Body</b></p>	<p><b>Significance of Increased Infrastructure Spending</b></p> <p><b>1. Economic Growth Multiplier</b></p>

	<ul style="list-style-type: none"><li>• Infrastructure investment has a strong multiplier effect.</li><li>• Stimulates demand in sectors such as steel, cement, and construction.</li></ul> <p><b>2. Employment Generation</b></p> <ul style="list-style-type: none"><li>• Creates large-scale direct and indirect jobs.</li><li>• Supports recovery after pandemic-induced job losses.</li></ul> <p><b>3. Reduction in Logistics Costs</b></p> <ul style="list-style-type: none"><li>• Improved transport networks enhance competitiveness of Indian industries.</li><li>• Facilitates domestic and global trade.</li></ul> <p><b>4. Crowd-in Private Investment</b></p> <ul style="list-style-type: none"><li>• Better infrastructure attracts private capital and manufacturing investment.</li></ul> <p><b>Limitations</b></p> <ul style="list-style-type: none"><li>• Underinvestment in <b>human capital</b> (health, education, skills).</li><li>• MSMEs and social sectors receive relatively smaller budget shares.</li><li>• Rising interest payments reduce fiscal space.</li><li>• Infrastructure alone cannot address AI-driven employment challenges.</li></ul> <p><b>Way Forward</b></p> <ul style="list-style-type: none"><li>• Balance physical infrastructure with social infrastructure.</li><li>• Increase investment in education, healthcare, and skilling.</li><li>• Integrate infrastructure growth with regional and employment policies.</li></ul>
<b>Conclusion</b>	While infrastructure-led spending supports short-term growth and productivity, sustainable economic development requires parallel investment in human capital to ensure inclusive and resilient growth.

## Environment & Ecology

**Q23. Climate change-induced expansion of glacial lakes has significantly increased the risk of Glacial Lake Outburst Floods (GLOFs) in the Himalaya-Karakoram region. Discuss the reasons for the rising GLOF risk and critically examine the gaps in assessment and preparedness. Suggest measures to enhance India's resilience to such hazards.**

**(GS Paper III – Environment, Climate Change, Disaster Management)**

## Introduction

The Himalaya–Karakoram region is witnessing a rapid rise in Glacial Lake Outburst Floods (GLOFs) due to accelerated glacier retreat driven by climate change. Recent studies warn that nearly one million people living downstream of glacial lakes face growing flood risks, while assessment and adaptation efforts remain inadequate.

## Body

### Reasons for Rising GLOF Risk

- **Climate change and elevation-dependent warming:** Higher warming rates at high altitudes have accelerated glacier melting, leading to rapid formation and expansion of glacial lakes.
- **Expansion of unstable lakes:** Since 1990, the number, area, and volume of glacial lakes have increased sharply, especially moraine-dammed and ice-dammed lakes that are structurally fragile.
- **Unstable triggers:** Avalanches, rockfalls, glacier calving, and sudden inflow from supraglacial or sub-glacial channels can abruptly breach natural dams.
- **Feedback loops:** Glaciers terminating in lakes retreat faster, further enlarging lakes and compounding flood risk.

### Gaps in Assessment and Preparedness

- **Inadequate risk mapping:** Many glacial lakes lack detailed hazard and breach assessments despite rapid expansion.
- **Data and research gaps:** Over-reliance on remote sensing, lack of ground-based observations, inconsistent lake definitions, and non-standardised datasets limit accurate risk evaluation.
- **Weak early-warning systems:** Limited deployment of real-time monitoring and Early Warning Systems (EWSs) in vulnerable valleys.
- **Neglect of social vulnerability:** Insufficient assessment of downstream population exposure and adaptive capacity.

### Way Forward

- **Comprehensive lake inventories:** Standardised, dynamic mapping incorporating seasonal and short-lived lakes.
- **Strengthening EWSs:** Real-time monitoring, community-based alert systems, and evacuation planning.
- **Integrated research:** Combining remote sensing with field studies and hydrological modelling.
- **Mainstreaming GLOFs in disaster planning:** Incorporating GLOF risk into infrastructure design, land-use planning, and climate adaptation policies.
- **Regional cooperation:** Sharing data and best practices across Himalayan countries.

### Conclusion

GLOFs represent a growing climate-induced disaster risk in the Himalaya–Karakoram region. Addressing scientific gaps, strengthening early-warning mechanisms, and adopting integrated, region-specific adaptation strategies are crucial to protect vulnerable communities and enhance disaster resilience.

**Q24. “Wetlands are not wastelands but vital natural infrastructure.” Discuss the significance of wetlands in India, the challenges to their conservation, and suggest measures to ensure their sustainable management.**

**(GS Paper III: Environment, Conservation, Water Security, Disaster Management, Climate Change)**

### Introduction

Wetlands are among the most productive yet threatened ecosystems in India, providing water security, climate resilience, livelihoods, and cultural continuity. Despite strong legal frameworks, rapid degradation highlights the need for integrated, community-driven wetland governance.

### Body

#### Significance of Wetlands

- Act as natural sponges that regulate floods, recharge groundwater, and stabilise hydrological cycles
- Function as powerful blue carbon sinks, supporting India’s climate commitments and net-zero goal
- Sustain livelihoods through fisheries, wetland agriculture, eco-tourism and traditional practices
- Serve as biodiversity hotspots and critical nodes along migratory bird flyways
- Protect coastlines from cyclones and storm surges and reduce disaster risks
- Embedded in India’s cultural heritage through tanks, kenis, sacred lakes and community commons

#### Challenges in Conservation

- Encroachment and land conversion have erased nearly 40% of wetlands
- Hydrological disruption due to dams, embankments, sand mining and groundwater extraction
- Pollution from untreated sewage, industrial effluents and agricultural runoff causing eutrophication
- Climate change impacts such as sea-level rise and altered rainfall patterns
- Institutional capacity gaps in State Wetland Authorities and weak enforcement

	<p><b>Measures Required</b></p> <ul style="list-style-type: none"> <li>• Strict notification, boundary demarcation and public mapping of wetlands</li> <li>• Treat wastewater before discharge; use constructed wetlands only as complementary systems</li> <li>• Adopt catchment-scale and basin-level management approaches</li> <li>• Integrate wetlands into disaster risk reduction and urban planning</li> <li>• Strengthen institutional capacity and incorporate traditional knowledge with modern science</li> </ul>
<p><b>Conclusion</b></p>	<p>Wetlands are living infrastructure essential for India’s water security and resilience. Aligning science, policy, and traditional wisdom through community-led and ecosystem-based governance is crucial to restore wetlands as thriving, functional ecosystems for future generations.</p>

**Q25. How do the Solid Waste Management Rules, 2026 seek to address India’s burgeoning solid waste problem? Critically examine the key changes introduced over the 2016 Rules and assess their potential in promoting a circular economy.**

**(GS Paper III – Environment)**

<p><b>Introduction</b></p>	<p>India is facing a severe solid waste management crisis, generating over <b>620 lakh tonnes of waste annually</b> and about <b>1.85 lakh tonnes daily</b>, with significant quantities still ending up in landfills. Recognising the limitations of the Solid Waste Management (SWM) Rules, 2016, the Union Government notified the <b>SWM Rules, 2026</b>, which come into force from <b>April 1, 2026</b>, with the objective of shifting India from a landfill-centric approach to a <b>circular economy–based waste governance framework</b>.</p>
<p><b>Body</b></p>	<p><b>Key Features of SWM Rules, 2026 and How They Address the Crisis</b></p> <p><b>1. Waste Hierarchy and Four-Way Segregation</b></p> <ul style="list-style-type: none"> <li>• Introduces a <b>waste hierarchy</b> prioritising <i>prevention, reduction, reuse, recycling and recovery</i>, with disposal as a last resort.</li> <li>• Mandates <b>four-stream segregation at source</b>:             <ul style="list-style-type: none"> <li>○ Wet waste</li> <li>○ Dry waste</li> <li>○ Sanitary waste</li> <li>○ Special-care waste</li> </ul> </li> <li>• This improves recycling efficiency and reduces landfill burden compared to the wet–dry segregation under the 2016 Rules.</li> </ul>

## 2. Enhanced Accountability of Bulk Waste Generators

- Clearly defines **Bulk Waste Generators (BWGs)** based on area, water use or waste generation.
- Introduces **Extended Bulk Waste Generator Responsibility (EBWGR)** through:
  - Mandatory registration
  - Certification-based compliance
  - On-site wet waste processing or procurement of compliance certificates
- This addresses the earlier weak enforcement regime for large waste producers.

## 3. Polluter Pays Principle

- Provides for **environmental compensation** for non-compliance, false reporting and improper waste handling.
- Imposes **higher landfill fees for unsegregated waste**, making landfilling economically unattractive.
- Marks a shift from advisory compliance to **deterrence-based regulation**.

## 4. Digital Monitoring and Transparency

- Establishes a **centralised online portal** to track the entire waste lifecycle.
- Mandatory registration of ULBs, BWGs, waste processors, transporters and large institutions.
- Reduces data gaps and improves regulatory oversight.

## 5. Landfill Minimisation and Legacy Waste Remediation

- Restricts landfills only to **non-recyclable and non-energy-recoverable waste**.
- Mandates **mapping and time-bound biomining and bioremediation** of legacy dumpsites.
- Promotes **energy recovery** from high-calorific waste through **Refuse Derived Fuel (RDF)**, with industries required to substitute fossil fuels progressively up to **15%**.

### Critical Assessment

While the Rules are progressive, challenges remain:

- Capacity constraints of Urban Local Bodies
- Behavioural change needed among citizens and housing societies
- Enforcement consistency across States

However, the digital monitoring framework and financial disincentives significantly strengthen compliance mechanisms.

### Conclusion

The Solid Waste Management Rules, 2026 represent a decisive policy shift towards **circular economy-oriented waste governance**, combining segregation, accountability, technology and economic instruments. If effectively implemented, they can reduce landfill dependence, improve environmental outcomes and transform waste from a liability into a resource, addressing one of India's most pressing urban-environmental challenges.

### Q26. Examine the significance of NDMA's Disaster Victim Identification (DVI) guidelines in strengthening India's disaster governance framework.

(GS Paper III – Disaster Management)

### Introduction

The NDMA's Disaster Victim Identification guidelines mark a major step toward scientific and humanitarian disaster management in India. By standardizing identification protocols, they enhance institutional preparedness while ensuring dignity and legal closure for victims' families.

### Body

#### Significance

- 1. Institutional Strengthening:** Provides a uniform national framework aligned with international standards, reducing confusion during mass fatality incidents.
- 2. Scientific Approach:** Integrates forensic odontology, archaeology, and DNA analysis, improving identification accuracy.
- 3. Humanitarian Perspective:** Ensures respectful handling of remains and psychological support, reinforcing the principle of the "dignity of the dead."
- 4. Better Coordination:** Clarifies stakeholder roles, improving multi-agency response across administrative levels.
- 5. Disaster Preparedness:** Critical in the context of increasing climate-induced disasters, industrial accidents, and urban emergencies.

#### Challenges

- Infrastructure shortages (mortuaries, cold storage).
- Limited trained forensic personnel.
- Data gaps and absence of centralized biometric systems.
- Coordination issues at large disaster sites.

#### Way Forward

- Develop national biometric and health-data repositories.
- Invest in forensic capacity building.
- Deploy portable DNA technologies.

	<ul style="list-style-type: none"> <li>• Use digital tools and AI for faster identification.</li> </ul>
<b>Conclusion</b>	The DVI guidelines reflect India's shift toward technology-driven and rights-based disaster governance. Effective implementation will enhance public trust, improve response efficiency, and ensure that humanitarian values remain central to disaster management.

**Q27. The National Green Tribunal (NGT) has approved the Great Nicobar Island Project citing its strategic importance while imposing environmental safeguards. Discuss its strategic significance and examine the associated concerns.**

<b>Introduction</b>	The ₹81,000-crore Great Nicobar Island Project, approved by the NGT in 2026 with stringent safeguards, seeks to develop a transshipment port, greenfield airport, township and power infrastructure in the southernmost island of India. It reflects India's strategic and economic ambitions in the Indo-Pacific.
<b>Body</b>	<p><b>Strategic Significance</b></p> <ol style="list-style-type: none"> <li>1. <b>Geostrategic Location:</b> Located near the Malacca, Sunda and Lombok Straits, the island sits astride major global sea lanes of communication (SLOCs).</li> <li>2. <b>Maritime Security:</b> Strengthens India's Maritime Domain Awareness and enhances its deterrence capability amid rising Chinese presence in the Indian Ocean Region.</li> <li>3. <b>Economic Potential:</b> The International Container Transshipment Terminal (ICTT) can reduce reliance on foreign ports like Singapore and Colombo and integrate India into global supply chains.</li> <li>4. <b>EEZ Advantage:</b> Reinforces India's strategic control over its vast Exclusive Economic Zone under UNCLOS (1982).</li> </ol> <p><b>Concerns</b></p> <ol style="list-style-type: none"> <li>1. <b>Ecological Impact:</b> Diversion of ~130 sq km of tropical rainforest threatens endemic biodiversity, coral reefs, and turtle nesting sites.</li> <li>2. <b>Seismic Vulnerability:</b> The island lies in a high seismic zone, as seen during the 2004 tsunami.</li> <li>3. <b>Tribal Rights:</b> Potential displacement of Shompen (PVTG) and Nicobarese communities raises concerns under the Forest Rights Act, 2006.</li> <li>4. <b>Compensatory Afforestation Issues:</b> Mainland afforestation cannot replicate unique island ecosystems.</li> </ol>
<b>Conclusion</b>	While strategically transformative, the project must adhere to strict environmental safeguards, ensure genuine tribal consultation, and adopt disaster-resilient planning to balance national security with ecological

sustainability.

**Q28. Elephants are considered keystone and flagship species in India's forest ecosystems. Discuss the importance of elephant conservation in India. Also examine the challenges associated with conservation and suggest measures to address human–elephant conflict.**

### GS-III (Environment & Ecology / Conservation)

<b>Introduction</b>	Elephants, particularly the Asian elephant ( <i>Elephas maximus indicus</i> ), are India's National Heritage Animal and are classified as <b>Endangered on the IUCN Red List</b> . India hosts over <b>60% of the world's wild Asian elephants</b> , making their conservation critical for biodiversity and ecosystem stability.
<b>Body</b>	<p><b>Importance of Elephant Conservation</b></p> <ol style="list-style-type: none"><li><b>1. Ecological Significance</b><ul style="list-style-type: none"><li>• Elephants act as <b>keystone species</b>, shaping ecosystems through seed dispersal and maintaining forest structure.</li><li>• They function as <b>ecosystem engineers</b>, helping regenerate forests and maintain grasslands.</li><li>• Their movement creates pathways benefiting other wildlife.</li></ul></li><li><b>2. Conservation and Biodiversity Role</b><ul style="list-style-type: none"><li>• As an <b>umbrella species</b>, protecting elephants also protects coexisting species and habitats.</li><li>• They are a <b>flagship species</b>, promoting public support for conservation.</li></ul></li><li><b>3. Environmental and Climate Role</b><ul style="list-style-type: none"><li>• Help in <b>carbon sequestration and nutrient cycling</b>.</li><li>• Maintain perennial river systems and forest ecosystems.</li></ul></li></ol> <p><b>Challenges in Elephant Conservation</b></p> <ol style="list-style-type: none"><li><b>1. Habitat Loss and Fragmentation</b><ul style="list-style-type: none"><li>• Infrastructure, agriculture, and urban expansion disrupt elephant corridors.</li></ul></li><li><b>2. Rising Human–Elephant Conflict</b><ul style="list-style-type: none"><li>• Causes <b>400–500 human deaths annually</b> and retaliatory elephant killings.</li></ul></li><li><b>3. Infrastructure Threats</b><ul style="list-style-type: none"><li>• Train collisions, electrocution from power lines, and open wells cause elephant mortality.</li></ul></li><li><b>4. Poaching and Illegal Trade</b><ul style="list-style-type: none"><li>• Targeted poaching for ivory and body parts affects</li></ul></li></ol>

	<p>population structure.</p> <p><b>5. Climate Change</b></p> <ul style="list-style-type: none"><li>• Alters food and water availability, increasing conflict.</li></ul> <p><b>Government Initiatives and Measures</b></p> <ul style="list-style-type: none"><li>• <b>Project Elephant (1992)</b> for habitat protection and conflict mitigation.</li><li>• <b>33 Elephant Reserves and 150 identified corridors</b> for safe movement.</li><li>• <b>Project RE-HAB (bee fences)</b> to reduce conflict.</li><li>• <b>MIKE Programme</b> to monitor illegal killings.</li><li>• Use of <b>GPS tracking, geospatial tools, and early warning systems.</b></li></ul> <p><b>Way Forward</b></p> <ul style="list-style-type: none"><li>• Strengthen corridor protection and habitat connectivity.</li><li>• Use technology such as GPS collars and intrusion detection systems.</li><li>• Promote community participation and compensation mechanisms.</li><li>• Implement wildlife-friendly infrastructure like underpasses.</li><li>• Enhance forest staff capacity and anti-poaching measures.</li></ul>
<p><b>Conclusion</b></p>	<p>Elephant conservation is vital not only for protecting a species but also for maintaining ecological balance and biodiversity. A combination of scientific management, habitat protection, technological interventions, and community participation is essential to ensure sustainable coexistence between humans and elephants.</p>

## Science & Technology

**Q29. India's heavy reliance on lithium-ion batteries poses challenges related to critical mineral dependence and supply security. In this context, examine the potential of sodium-ion battery technology as an alternative and discuss the policy measures required to integrate it into India's energy transition.**

**(GS Paper III – Science & Technology)**

<p><b>Introduction</b></p>	<p>Energy storage has become a critical pillar of India's clean energy transition, electric mobility push and digital economy. At present, lithium-ion batteries dominate this space due to their high energy density and maturity. However, India's dependence on lithium-ion</p>
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technology exposes structural vulnerabilities linked to critical mineral imports, geopolitical risks and supply-chain concentration. In this context, sodium-ion batteries (SiBs) are emerging as a strategic alternative that can enhance India's long-term energy security.

## Body

### Why Lithium-Ion Dependence is a Constraint

- **Critical mineral dependence:** Lithium-ion batteries rely on lithium, cobalt, nickel and graphite, minerals with uneven global distribution and concentrated refining capacity.
- **Import vulnerability:** India lacks proven commercial lithium reserves and has a weak upstream ecosystem, leading to persistent import dependence.
- **Geopolitical and price risks:** Rising global demand may intensify supply insecurity and price volatility.
- **Safety concerns:** Lithium-ion batteries are prone to thermal runaway and classified as “dangerous goods,” increasing logistics and compliance costs.

### Potential of Sodium-Ion Batteries

- **Material security:** Sodium is abundantly available (e.g., soda ash) and geographically diversified, reducing critical mineral risk.
- **Safety advantage:** Sodium-ion batteries exhibit lower thermal runaway risk and can be stored and transported safely at zero volts.
- **Manufacturing compatibility:** Existing lithium-ion manufacturing lines can be adapted with minimal modifications, lowering capital costs.
- **Cost competitiveness:** Projections suggest sodium-ion batteries could undercut lithium-ion costs by 2035.
- **Strategic fit:** Particularly suitable for grid storage, stationary applications, and two- and three-wheeler EVs where ultra-high energy density is less critical.

### Policy and Ecosystem Measures Needed

- Expand **PLI and industrial incentives** to explicitly include sodium-ion chemistries.
- Support **upstream manufacturing** of cathodes, anodes, electrolytes and separators for sodium-ion systems.
- Update **standards, safety codes and certification frameworks** to cover sodium-ion batteries.
- Promote **pilot deployments** in grid storage and public EV fleets.
- Fund **R&D and demonstration projects** to accelerate commercial readiness.

### Conclusion

Sodium-ion batteries are not a replacement but a strategic complement to lithium-ion technology. By integrating sodium-ion batteries into its policy, regulatory and industrial framework, India can reduce material vulnerabilities, enhance energy security and build a resilient, future-ready battery ecosystem aligned with its clean energy ambitions.

### Q30. Nuclear power is considered a crucial option for meeting India's rising energy demand in a low-carbon transition. Critically examine.

(GS Paper 3 – Science & Technology / Energy)

### Introduction

India's rapid economic growth, urbanisation, and industrial expansion have sharply increased electricity demand. Simultaneously, commitments to decarbonisation and energy security necessitate reliable and low-carbon energy sources. In this backdrop, nuclear power is often projected as a viable alternative in India's energy transition.

### Body

#### Arguments in Favour of Nuclear Power

##### 1. Low Carbon Emissions:

- Nuclear energy generates electricity without emitting greenhouse gases during operation, supporting India's commitments under the Paris Agreement.

##### 2. Reliable Baseload Power:

- Unlike intermittent renewable sources such as solar and wind, nuclear power provides continuous and stable electricity supply, ensuring grid stability.

##### 3. Energy Security:

- By reducing dependence on imported fossil fuels, nuclear energy enhances strategic autonomy. India's three-stage nuclear programme, leveraging domestic thorium reserves, strengthens long-term sustainability.

##### 4. High Energy Density & Low Land Requirement:

- Nuclear plants produce large quantities of electricity using comparatively smaller land areas than renewable installations.

#### Challenges and Concerns

##### 1. High Capital Costs & Delays:

- Nuclear projects involve long gestation periods, cost overruns, and heavy initial investments.

##### 2. Safety Concerns:

- Events like the Fukushima Daiichi nuclear disaster intensified global apprehensions about reactor safety and disaster resilience.

##### 3. Public Opposition & Land Issues:

	<ul style="list-style-type: none"> <li>Projects such as Kudankulam Nuclear Power Plant have faced protests and delays due to environmental and livelihood concerns.</li> </ul> <p><b>4. Limited Current Contribution:</b></p> <ul style="list-style-type: none"> <li>Despite policy focus, nuclear energy contributes only about 3% of India's electricity generation, raising questions about scalability.</li> </ul>
<b>Conclusion</b>	<p>Nuclear power can play an important supplementary role in India's clean energy mix. However, high costs, safety risks, and socio-political challenges limit its rapid expansion. A balanced energy strategy integrating renewables, nuclear power, storage technologies, and grid reforms is essential to sustainably meet India's growing energy needs.</p>

**Q31. Discuss the need for establishing an Indian Scientific Service (ISS) in India's governance framework.**

**(GS III: Science & Technology in governance, environmental governance)**

<b>Introduction</b>	<p>India's administrative system was designed after Independence to ensure stability through generalist civil services. However, modern governance increasingly involves complex scientific and technological challenges, necessitating institutional integration of scientific expertise.</p>
<b>Body</b>	<p><b>Need for Indian Scientific Service</b></p> <ol style="list-style-type: none"> <li><b>Complex Nature of Modern Governance:</b> Climate change, pandemics, AI regulation, and environmental risks require specialised knowledge.</li> <li><b>Administrator–Scientist Gap:</b> Scientists lack structured career progression and authority within government systems.</li> <li><b>Limitations of Existing Rules:</b> Central Civil Services rules emphasise hierarchy rather than scientific inquiry.             <ul style="list-style-type: none"> <li>Scientific inputs remain advisory.</li> </ul> </li> <li><b>Reactive Use of Science:</b> Scientific expertise used mainly during crises instead of continuous policymaking.</li> <li><b>Global Best Practices:</b> Advanced democracies maintain scientific cadres ensuring evidence-based decisions.</li> </ol> <p><b>Features of ISS</b></p> <ul style="list-style-type: none"> <li>All-India scientific cadre.</li> <li>Recruitment through national selection and peer evaluation.</li> <li>Placement within ministries and regulatory bodies.</li> <li>Protection of scientific integrity.</li> <li>Clear separation between advice and political decision-making.</li> </ul>

	<p><b>Benefits</b></p> <ul style="list-style-type: none"> <li>• Evidence-based policymaking</li> <li>• Improved risk assessment</li> <li>• Better climate and environmental governance</li> <li>• Strengthened disaster preparedness</li> <li>• Enhanced policy transparency and public trust.</li> </ul> <p><b>Challenges</b></p> <ul style="list-style-type: none"> <li>• Coordination between administrators and scientists.</li> <li>• Avoiding bureaucratic duplication.</li> <li>• Maintaining accountability within democratic governance.</li> </ul>
<b>Conclusion</b>	The Indian Scientific Service would represent an evolution of India's administrative framework by combining administrative efficiency with scientific reasoning, enabling resilient and future-ready governance.

**Q32. Recent advances in genome editing indicate a shift from disease-specific treatment to mutation-class therapy. Discuss with reference to the new prime-editing strategy.**

**(GS Paper III – Science & Technology, Advances in genetic engineering)**

<b>Introduction</b>	Genetic disorders frequently arise due to mutations that disrupt normal protein synthesis. Among them, <b>nonsense mutations</b> , which introduce premature stop codons, account for nearly <b>25% of all disease-causing genetic changes</b> . Traditionally, treatment strategies target individual diseases separately, making therapy development slow, expensive, and limited in reach. Recent advances in genome editing using <b>prime editing-based engineered tRNA systems</b> signal a transition toward mutation-class therapy.
<b>Body</b>	<p><b>Background: The Challenge</b></p> <ul style="list-style-type: none"> <li>• Nonsense mutations prematurely halt protein production.</li> <li>• Result in incomplete or non-functional proteins leading to disorders such as Batten disease, Tay-Sachs disease, and Niemann-Pick disease.</li> <li>• Conventional gene therapy requires correcting each mutation individually.</li> <li>• Regulatory approval and development costs increase significantly</li> </ul> <p><b>The Prime-Editing Strategy</b></p> <p>The new approach employs <b>prime editing</b>, a precise genome-editing technique that rewrites genetic instructions without creating harmful DNA breaks.</p>

### Mechanism:

- Scientists engineered **transfer RNA (tRNA)** molecules known as suppressor tRNAs.
- These modified tRNAs recognise premature stop codons and insert amino acids instead of terminating translation.
- This enables cells to continue protein synthesis and produce functional proteins.

The strategy, termed **PERT (Prime-Editing-mediated Readthrough of Premature Termination codons)**, effectively converts cellular machinery into a therapeutic tool.

### Key Findings

- Editing efficiency reached **60–80%**, significantly higher than traditional homology-directed repair methods.
- Natural stop signals remained unaffected, indicating biological precision.
- Delivery through **AAV9 viral vectors** restored protein activity in multiple organs in mouse models.
- Improved disease pathology observed without major toxicity.

### Significance: Shift to Mutation-Class Therapy

- One therapeutic platform can treat multiple diseases caused by the same mutation type.
- Reduces time and cost of drug development.
- Expands treatment possibilities for rare genetic disorders.
- Represents advancement beyond conventional CRISPR-based editing.

### Challenges and Concerns

- Safe and efficient delivery in humans.
- Long-term genetic stability and monitoring.
- Ethical and regulatory considerations.
- Variable effectiveness across tissues.

### Way Forward

Future research must focus on improving delivery technologies, conducting clinical trials, and establishing regulatory frameworks to ensure safe therapeutic application.

### Conclusion

The prime-editing-based genome-editing strategy marks a paradigm shift from disease-specific correction to scalable mutation-class therapy. If successfully translated into clinical practice, it could revolutionise precision medicine by enabling broader and more cost-effective treatment of genetic disorders.

**Q33. Discuss the significance of the India–AI Impact Summit 2026 in positioning India as a global leader in responsible Artificial Intelligence.**

**(GS Paper III: Science & Technology (AI applications))**

<p><b>Introduction</b></p>	<p>Artificial Intelligence is emerging as a critical driver of economic growth and governance transformation. The India–AI Impact Summit 2026 reflects India’s ambition to lead global AI development aligned with the vision of Viksit Bharat@2047.</p>
<p><b>Body</b></p>	<p><b>Significance of the Summit</b></p> <ol style="list-style-type: none"> <li><b>1. Global Leadership in AI</b> <ul style="list-style-type: none"> <li>• First major AI summit hosted in the Global South.</li> <li>• Promotes multilateral cooperation and equitable AI access.</li> </ul> </li> <li><b>2. Governance &amp; Responsible AI</b> <ul style="list-style-type: none"> <li>• Focus on Safe and Trusted AI frameworks.</li> <li>• Strengthens regulatory and ethical AI deployment.</li> </ul> </li> <li><b>3. Economic and Developmental Impact</b> <ul style="list-style-type: none"> <li>• AI applications across healthcare, agriculture, education, and finance.</li> <li>• Supports inclusive growth and productivity enhancement.</li> </ul> </li> <li><b>4. Capacity Building</b> <ul style="list-style-type: none"> <li>• Human Capital Chakra promotes AI skilling.</li> <li>• Youth and women participation through YUVAi and AI by HER.</li> </ul> </li> <li><b>5. Innovation Ecosystem</b> <ul style="list-style-type: none"> <li>• Startup support through IndiaAI Mission and STPI.</li> <li>• Democratization of AI resources and compute infrastructure.</li> </ul> </li> </ol> <p><b>Challenges</b></p> <ul style="list-style-type: none"> <li>• Digital divide and unequal AI access.</li> <li>• Data privacy and ethical concerns.</li> <li>• Environmental cost of large AI systems.</li> </ul> <p><b>Way Forward</b></p> <ul style="list-style-type: none"> <li>• Strengthen indigenous AI models.</li> <li>• Expand AI skilling programs.</li> <li>• Build robust governance frameworks balancing innovation and safety.</li> </ul>
<p><b>Conclusion</b></p>	<p>The India–AI Impact Summit 2026 marks a shift from AI dialogue to implementation, positioning India as a global hub for inclusive, ethical, and development-oriented artificial intelligence.</p>

# Internal Security

**Q34. Q. The release of India's first counter-terror policy 'PRAHAAR' marks a shift towards a comprehensive and technology-driven internal security framework. Discuss.**

**(GS Paper III – Internal Security)**

<b>Introduction</b>	India's security landscape has evolved from conventional cross-border terrorism to complex, technology-enabled, and transnational threats. The release of PRAHAAR in 2026 — India's first comprehensive counter-terrorism policy — institutionalises a zero-tolerance, intelligence-led, and multi-dimensional strategy to combat terrorism and its ecosystem.
<b>Body</b>	<p><b>Significance / Key Dimensions</b></p> <ol style="list-style-type: none"><li><b>1. Comprehensive National Framework</b><ul style="list-style-type: none"><li>• First unified counter-terror doctrine integrating land, air, and maritime threats.</li><li>• Standardised anti-terror structure across States for coordinated response.</li></ul></li><li><b>2. Recognition of Evolving Threats</b><ul style="list-style-type: none"><li>• Addresses cyber-attacks by criminal hackers and hostile nation-states.</li><li>• Identifies use of encryption, dark web, crypto wallets, and drones.</li><li>• Flags risks of CBRNED (Chemical, Biological, Radiological, Nuclear, Explosive, Digital) materials.</li></ul></li><li><b>3. Protection of Critical Infrastructure</b><ul style="list-style-type: none"><li>• Focus on safeguarding power, railways, aviation, ports, defence, space and atomic sectors.</li><li>• Moves towards infrastructure-centric security preparedness.</li></ul></li><li><b>4. Intelligence-Led Prevention</b><ul style="list-style-type: none"><li>• Emphasis on pre-emption rather than post-incident response.</li><li>• Greater coordination between NIA and State agencies.</li></ul></li><li><b>5. Counter-Radicalisation &amp; Whole-of-Society Approach</b><ul style="list-style-type: none"><li>• Graded police response to radicalised youth.</li><li>• Engagement of community leaders, NGOs, psychologists.</li><li>• Prison de-radicalisation programmes.</li></ul></li><li><b>6. International Cooperation</b><ul style="list-style-type: none"><li>• Recognises transnational terrorism and state-sponsored terror</li></ul></li></ol>

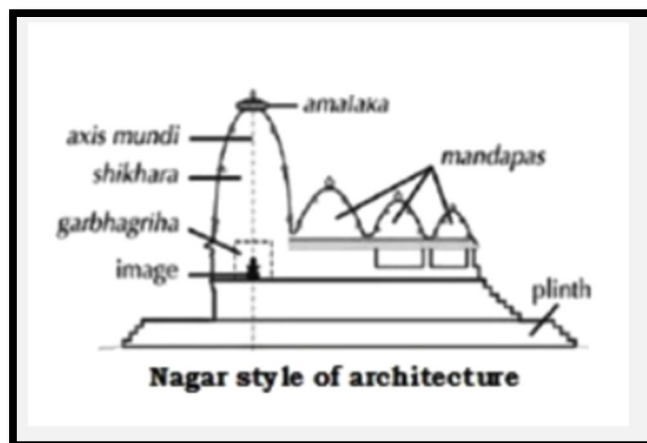
	<p>networks.</p> <ul style="list-style-type: none"> <li>• Calls for regional and global alignment.</li> </ul> <p><b>Challenges</b></p> <ul style="list-style-type: none"> <li>• Encryption and digital anonymity complicating investigations.</li> <li>• Balancing surveillance with civil liberties and human rights.</li> <li>• Federal coordination gaps across States.</li> <li>• Cross-border safe havens and geopolitical constraints.</li> </ul> <p><b>Way Forward</b></p> <ul style="list-style-type: none"> <li>• Strengthen AI-based intelligence analytics.</li> <li>• Build advanced cyber forensics and counter-drone systems.</li> <li>• Continuous policy review to adapt to technological change.</li> <li>• Deepen international intelligence-sharing mechanisms.</li> </ul>
<b>Conclusion</b>	<p>PRAHAAR represents a shift from reactive policing to preventive, technology-integrated counter-terrorism. Its success will depend on effective Centre–State coordination, technological capacity-building, and safeguarding democratic values while ensuring national security.</p>

## Art & Culture

**Q35. The Nagara Style of temple architecture was mostly prevalent in Northern India. Discuss its main features.**

**(GS Paper I – Art & Culture)**

<b>Introduction</b>	<p>From the 5th century CE onwards, a distinct temple architectural style known as the <b>Nagara style</b> emerged in northern India. It developed in the region between the Himalayas and the Vindhyas and later spread across western, central, and eastern India with regional variations. While the Dravida style flourished in the south, the Nagara style became the dominant northern temple tradition.</p>
<b>Body</b>	<p>The most characteristic feature of the Nagara style is the <b>curvilinear shikhara (rekha-prasad)</b> that rises vertically above the <b>garbhagriha</b> (sanctum). The tower curves inward toward the top and culminates in a ribbed circular stone disc called the <b>amalaka</b>, crowned by a <b>kalasha</b>. In addition to the Latina type, other shikhara forms such as <b>Phamsana</b> (pyramidal, broader base) and <b>Valabhi</b> (wagon-vaulted roof) were also used.</p>



- Temples were generally constructed on an **elevated platform (jagati)** and often followed the **Panchayatan style**, where four subsidiary shrines were placed around the main shrine in a cruciform plan. The sanctum was preceded by one or more **mandapas (assembly halls)**, connected through pillared porches.
- The exterior walls were articulated into vertical offsets known as **rathas** (triratha, pancharatha, saptaratha, etc.), which created space for elaborate narrative sculptures. Decorative panels often depicted mythological scenes, deities, and celestial figures. Images of **Ganga and Yamuna** were typically installed at the entrance of the sanctum. A covered **pradakshina path** was commonly provided.
- Unlike Dravida temples, Nagara temples usually lacked massive boundary walls, elaborate **gopurams**, and temple tanks within the complex.

### Conclusion

Exemplified by the **Sun Temple at Konark**, **Lingaraj Temple at Bhubaneswar**, and **Jagannath Temple at Puri**, the Nagara style reflects a vertical architectural emphasis, sculptural richness, and regional adaptability, making it a hallmark of northern Indian temple architecture.

# Government Policies

**Q36. National AIDS Control Programme Phase-V (NACP-V, 2021–26) aligns India's HIV/AIDS response with SDG 3.3. Discuss its core goals, key strategies and challenges in achieving the target of ending AIDS as a public health threat by 2030.**

**(GS Paper II: Government policies & interventions; Issues relating to Health)**

<b>Introduction</b>	India's National AIDS Control Programme (NACP) implemented through NACO (MoHFW) is the backbone of HIV prevention, care and treatment. NACP-V (2021–26) is a central sector scheme (outlay ₹15,000+ crore) aligned with SDG 3.3 to end AIDS as a public health threat by 2030.
<b>Body</b>	<p><b>Key Highlights / Core Goals of NACP-V (2021–26)</b></p> <ol style="list-style-type: none"><li>1. <b>Reduce annual new HIV infections by 80%</b> (from 2010 baseline)</li><li>2. <b>Reduce AIDS-related mortality by 80%</b> (from 2010 baseline)</li><li>3. <b>Eliminate vertical transmission (mother-to-child) of HIV and syphilis</b></li><li>4. <b>Universal access to quality STI/RTI services</b> for at-risk and vulnerable groups</li><li>5. <b>Eliminate stigma and discrimination</b> (supported by HIV/AIDS Act, 2017)</li><li>6. <b>Operational Target: 95-95-95</b> (95% know status, 95% on treatment, 95% virally suppressed)</li></ol> <p><b>Strategies/Approach (How NACP works)</b></p> <ul style="list-style-type: none"><li>• <b>Prevention:</b> targeted interventions for high-risk groups, condom promotion, harm reduction, STI/RTI services.</li><li>• <b>Testing &amp; Early Diagnosis:</b> expanded HIV testing coverage; “Test and Treat” approach.</li><li>• <b>Treatment &amp; Viral Suppression:</b> ART scale-up and <b>universal viral load monitoring</b>.</li><li>• <b>Continuity of Care:</b> re-linking PLHIV lost to follow-up (Mission Sampark).</li><li>• <b>Decentralised implementation:</b> systems like DAPCUs (from NACP-III) support district-level response.</li><li>• <b>Rights-based framework:</b> anti-discrimination protections (HIV/AIDS Act, 2017).</li></ul> <p><b>Achievements/Progress (Evidence from given data)</b></p>

- **HIV prevalence** reduced from **0.33% (2010)** to **0.20% (2024)** (below global average 0.70%).
- **New infections** fell from **1.25 lakh (2010)** to **64,500 (2024)** (~49% decline).
- India accounts for **~5% of global new infections** (global ~1.3 million in 2024).
- Under NACP-V, **testing** increased from **4.13 crore (2020–21)** to **6.62 crore (2024–25)**.
- People on **ART** increased from **14.94 lakh** to **18.60 lakh (2024–25)**.

### Challenges/Concerns

- **Stigma & discrimination** still deter testing and treatment adherence.
- **Late diagnosis** in some pockets → higher mortality risk.
- **Retention in care** (loss to follow-up) despite initiatives.
- **Mother-to-child transmission elimination** requires strong ANC testing + treatment compliance.
- **Co-infections** (TB, STIs) and vulnerable groups need sustained targeted focus.
- **Health system gaps** (human resources, last-mile delivery, quality monitoring).

### Way Forward

- Intensify **95-95-95** achievement with **early testing**, linkage, and retention.
- Strengthen **PMTCT** (HIV & syphilis) via universal ANC screening and follow-up.
- Expand **community-based awareness** to reduce stigma; enforce HIV/AIDS Act provisions.
- Improve **quality of STI/RTI services** and integrated care (HIV-TB, maternal health).
- Use data-driven district strategies through **DAPCUs** and targeted interventions.

### Conclusion

NACP-V represents a mature, rights-based and evidence-driven HIV response. Sustaining prevention gains, ensuring early diagnosis, lifelong ART adherence, and stigma reduction will be decisive for India to meet **SDG 3.3** and end AIDS as a public health threat by **2030**.

# Public Health

**Q37. India is facing a silent crisis in adolescent mental health, aggravated by digital overexposure. Discuss.**

**(GS Paper II – Health / GS Paper III – Human Resource Development)**

<b>Introduction</b>	India's demographic dividend depends on the wellbeing of its youth. However, rising cases of anxiety, depression, ADHD, and behavioural disorders among children and adolescents indicate a growing mental health crisis. The rapid expansion of digital access, coupled with academic pressure and limited mental health infrastructure, has intensified vulnerabilities.
<b>Body</b>	<p><b>Nature and Extent of the Crisis</b></p> <ul style="list-style-type: none"><li>• Population-level surveys show that nearly one in ten adolescents suffers from diagnosable mental health conditions. Comorbidities such as ADHD with anxiety or depression with compulsive digital use complicate treatment. Early trauma and chronic stress can disrupt cognitive and emotional development, often resurfacing in adolescence.</li></ul> <p><b>Digital Amplification of Vulnerability</b></p> <ul style="list-style-type: none"><li>• The widespread availability of smartphones and low-cost Internet has reshaped childhood. Excessive screen exposure contributes to sleep disruption, reduced attention span, and emotional dysregulation. Although digital use does not cause neurodevelopmental disorders, it exacerbates symptoms and displaces vital human interaction during critical neuroplastic phases.</li></ul> <p><b>Institutional and Systemic Gaps</b></p> <ul style="list-style-type: none"><li>• India faces a severe shortage of child psychiatrists and psychologists. Schools prioritise academic performance over emotional wellbeing. Stigma delays early intervention, while fragmented services limit access to care.</li></ul> <p><b>Way Forward</b></p> <ul style="list-style-type: none"><li>• Institutionalise school-based mental health screening.</li><li>• Strengthen Tele-MANAS and community counselling.</li><li>• Train teachers and paediatricians in early detection.</li><li>• Promote trauma-informed parenting and peer-support groups.</li><li>• Develop balanced digital literacy policies rather than punitive</li></ul>

	bans.
<b>Conclusion</b>	Adolescent mental health is not merely a medical issue but a developmental and societal concern. Addressing it requires a coordinated, multi-sectoral approach that integrates digital governance, school reform, community engagement, and accessible mental health services to secure India's human capital future.

**Q38. India's nationwide HPV vaccination programme is a key preventive intervention to eliminate cervical cancer. Discuss its significance, implementation strategy, and challenges.**

**(GS Paper II – Health/Government policies & interventions)**

<b>Introduction</b>	Cervical cancer remains the second most common cancer among women in India, with about 80,000 new cases and over 42,000 deaths annually. Scientific evidence shows that persistent infection with high-risk HPV types—especially HPV 16 and 18—causes nearly all cervical cancer cases, accounting for over 80% of cases in India. In this context, India's planned nationwide, free and voluntary HPV vaccination programme for 14-year-old girls is a major preventive public health intervention to reduce disease burden and advance cervical cancer elimination goals.
<b>Body</b>	<p><b>Significance</b></p> <ol style="list-style-type: none"> <li><b>Primary prevention at the right age:</b> Targeting girls aged 14 ensures maximum benefit before potential exposure, thereby preventing infection before it progresses to cancer.</li> <li><b>High effectiveness and safety:</b> HPV vaccines are extensively studied, showing 93–100% effectiveness against vaccine-covered types; the vaccine is non-live and has a strong global safety record with 500 million+ doses since 2006.</li> <li><b>Equity and access:</b> Free vaccination nationwide reduces socio-economic barriers and supports women's health equity.</li> <li><b>Alignment with global targets:</b> The programme supports WHO's cervical cancer elimination strategy (90% vaccinated by 15; 70% screened; 90% treated).</li> </ol> <p><b>Implementation Strategy</b></p> <ul style="list-style-type: none"> <li>The programme will use <b>Gardasil (quadrivalent)</b> covering HPV 16/18 and 6/11, adopting a <b>single-dose regimen</b> backed by global and Indian evidence, with procurement supported through a transparent mechanism under India's partnership with <b>Gavi</b> and maintained via stringent <b>cold-chain standards</b>. Vaccination will be provided only at <b>designated government facilities</b> (Ayushman Arogya Mandirs/PHCs, CHCs, district hospitals,</li> </ul>

	<p>government medical colleges). Sessions will be conducted under trained medical officers with post-vaccination observation, readiness for rare adverse events, and linkage to 24×7 facilities. Coverage is proposed as a special campaign tracked through U-WIN.</p> <p><b>Challenges</b></p> <ul style="list-style-type: none"><li>• Key challenges include misinformation and vaccine hesitancy, ensuring last-mile delivery and cold-chain integrity, and the risk of complacency where people may wrongly assume vaccination replaces screening. Since no vaccine covers all oncogenic HPV types and vaccination cannot eliminate existing infections, screening remains essential.</li></ul> <p><b>Way Forward</b></p> <ul style="list-style-type: none"><li>• India should integrate vaccination with strengthened screening (Pap smear/HPV DNA testing pathways), run sustained behaviour-change communication, and use U-WIN for monitoring coverage gaps and safety reporting.</li></ul>
<p><b>Conclusion</b></p>	<p>If implemented with high coverage, robust safety systems, and strong screening integration, India's HPV vaccination programme can substantially reduce cervical cancer incidence and mortality and move the country closer to eliminating cervical cancer as a public health threat.</p>