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A. Polity & Governance

1. **Discuss how the North–South divide in India poses challenges to cooperative federalism. How can fiscal and political mechanisms be redesigned to maintain national cohesion? (15M, 250 Words)**

India's federal system rests on **cooperative federalism**, where diversity is harmonised through shared governance. However, the emerging North–South divide - driven by differences in economic capacity, demographic trends, and governance outcomes - has begun to challenge this balance.

Challenges to Cooperative federalism:

1. **Fiscal unfairness:**
 - Southern states increasingly feel that their **higher economic contribution** is not adequately **recognised** in resource distribution.
 - States like Tamil Nadu and Karnataka generate substantial tax revenues, yet often receive relatively lower devolution.
2. **Demographic divergence:**
 - Southern states, having achieved **lower fertility rates**, fear that future delimitation may **reduce their voice in Parliament**.
 - This creates a paradox where success in population control may lead to **loss of political influence**.
3. **Development outcomes:**
 - While southern states have capitalised on economic reforms, many northern states continue to lag.
 - This is reflected in stark differences such as **2 - 3 times higher per capita income** in southern states, deepening regional disparities.
4. **Centralisation of fiscal powers:**
 - Reforms like GST, though beneficial for integration, have **reduced states' fiscal flexibility**.
 - Issues like delayed GST compensation have further reinforced the perception of **central dominance over state finances**.
5. **Regional political narratives:**
 - Economic and demographic imbalances are now shaping political discourse, with growing concerns over **"fair share vs redistribution."**
 - These risks weakening trust, which is the backbone of cooperative federalism.

Redesigning fiscal and political mechanisms:

- A. **Fiscal mechanisms:**
 - **Performance-linked devolution:** Allocation formulas should recognise **tax effort, governance quality, and demographic discipline**, ensuring fairness beyond mere population numbers.
 - **Fiscal autonomy to states:** Allowing states more flexibility in taxation and borrowing can **empower them to address region-specific priorities effectively**.
 - **Targeted investments:** Focused spending on **infrastructure, education, and skilling** can help northern states catch up, reducing long-term disparities.
 - **Strengthen cooperative platforms:** Institutions like NITI Aayog and the GST Council must function as genuine forums of dialogue rather than top-down decision-making bodies.

B. Political mechanisms:

- **Balanced approach:** Representation should incorporate development indicators along with population, avoiding penalisation of progressive states.
- **Strengthening Rajya Sabha:** It should act as a counterbalance to population-driven dominance, ensuring equitable regional voice.
- **Consensus-driven constitutional reforms:** Sensitive issues like delimitation require broad-based consultation and political consensus.

Conclusion:

The North–South divide is not merely a regional imbalance but a **stress test for India's federal design**. Sustaining national cohesion will require a careful recalibration of fiscal and political mechanisms to ensure that **no state feels disadvantaged for its success or trapped in its backwardness**.

‘+1’ Value Addition:

- Southern states like Tamil Nadu and Karnataka contribute significantly to GST collections but reportedly receive **less than ₹1 for every ₹1 contributed**.
- Southern states have achieved **replacement-level fertility (TFR ~1.6–1.8)**, while states like Bihar and UP still have **TFR above 2.5**.
- States like Tamil Nadu and Karnataka have **2 - 3 times higher per capita income** than Bihar and Uttar Pradesh.

2. Examine how National Education Policy (NEP) 2020 is transforming education in India and discuss the key challenges that need to be addressed for its effective implementation. (15 Marks, 250 Words)

The National Education Policy 2020 marks a paradigm shift in India's education system by focusing on **holistic learning, skill development, and innovation-driven education**. Replacing the 34-year-old policy of 1986, NEP aims to improve **access, equity, and quality** across all levels of education.

NEP 2020 transforming education in India:**1. Structural reform in school education:**

- NEP introduced the **5+3+3+4 curricular structure**, replacing the traditional 10+2 system.
- Emphasis on **play-based learning in foundational years (ages 3–8)**. For e.g., Early childhood education is now integrated into the formal system through **Anganwadi–school convergence**.

2. Shift to competency-based education:

- Assessment reforms aim to test **conceptual understanding rather than memorization**.
- Establishment of the **National Assessment Centre – PARAKH**. For e.g., Introduction of the **360-degree Holistic Progress Card** tracking cognitive and socio-emotional development.

3. Digital Integration:

- Platforms such as PM eVidya and DIKSHA provide online learning resources for millions of students.
- For e.g., India's **edtech sector received \$3.9 billion investment in FY22**, expanding access to digital education.

4. Promotion of innovation and research: Initiatives like Atal Innovation Mission and Atal Tinkering Labs encourage STEM learning and innovation. For e.g, over **8,000 Atal Tinkering Labs** have been established across schools.**5. Integration of vocational learning:** Vocational training introduced from **Grade 6 onwards** to improve employability which aligns with the Skill India Mission.

Challenges hindering effective implementation:

1. **Poor learning outcomes:** Surveys show **75%** of Class 3 students cannot read Grade-2 level texts, indicating foundational learning gaps.
2. **Teacher Shortages:** Nearly **6%** reduction in sanctioned teaching posts (2021–2024). Lack of subject specialists in STEM fields became a deterrent.
3. **Resource constraints:** Many rural schools lack basic facilities. For e.g., only **47%** of schools have drinking water and **53%** have separate toilets for girls.
4. **Digital divide:** While digital learning expanded, only about **47%** of rural students have access to reliable internet.
5. **Governance challenges:** Education being a **Concurrent subject**, coordination issues between Centre and States slow reform implementation.

Measures Needed for effective implementation:

1. **Strengthening capacity:** Address the shortage of qualified teachers through regular recruitment and continuous professional development.
2. **Increased public investment:** Raise education spending to the NEP target of **6%** of GDP to improve infrastructure, teacher salaries, and digital learning resources.
3. **Bridging the digital divide:** Strengthen platforms such as PM e-Vidya and DIKSHA to ensure equitable digital access.
4. **Reforming curriculum:** Strengthen assessment reforms through PARAKH and encourage project-based learning and critical thinking.

Conclusion:

NEP 2020 represents a transformative vision for India's education system by promoting **innovation, multidisciplinary learning, and digital integration**. There is a need to build the **skilled human capital** required for India's aspiration of becoming a knowledge economy and achieving **Viksit Bharat 2047**.

'+1' Value Addition:

- India currently has over **52,000 colleges** and **1,362 universities**, reflecting expansion of higher education.
- **Gross Enrolment Ratio (GER)** in higher education reached **28.4%**, with NEP targeting **50%** by 2035.
- Under the Atal Innovation Mission, more than **8,000 Atal Tinkering Labs** have been established to promote STEM learning and innovation.
- According to the ASER report, about **75%** of Class 3 students cannot read a Grade 2 level text.

- 3. Judicial administration in India faces multiple challenges that affect efficiency, transparency, and public trust. Examine the key issues confronting judicial administration and suggest measures to enhance transparency and accountability in the system. (10M, 150 words)**

The Indian judiciary, as the guardian of the Constitution under Articles 32 and 226, plays a central role in upholding rule of law, federal balance and fundamental rights. Judicial administration refers to the institutional management of courts, including appointments, infrastructure, staffing, case management and accountability mechanisms.

Key issues in judicial administration:**1. Pendency and delays:**

- India has over 5 crore pending cases, with nearly 2.7 crore in district courts and about 44 lakhs in High Courts.
- Low judge strength of 15–17 judges per million population (compared to 130 in the USA) exacerbates delays.

2. Infrastructure deficit:

- Nearly 30 - 35% vacancies persist in subordinate courts, and around 250 High Court posts remain unfilled periodically.
- Judicial infrastructure spending is only about 0.09% of GDP, leading to overcrowded courts and digital gaps.

3. Appointment opacity:

- The Collegium system is criticised for lack of transparency in selection and transfer of judges.
- The NJAC judgment, 2015 upheld judicial primacy but did not fully resolve concerns regarding accountability.

4. Case mismanagement issues:

- As per NCRB, about 76% of prison inmates are undertrials, reflecting systemic delays.
- Inefficient case classification and frequent adjournments worsen backlog.

5. Accountability issues:

- In-house procedures for judicial misconduct often lack transparency.
- There is no independent judicial oversight body with statutory backing.

Measures to enhance transparency and accountability:

- 1. Reforming appointment process:** Introduce greater transparency in Collegium decisions through public disclosure of criteria, evaluation metrics, and wider consultation, as suggested by Law Commission.
- 2. Strengthening institutional capacity:**
 - Increase judge strength towards 50 judges per million population.
 - Establish a National Judicial Infrastructure Authority (NJIA) to standardise infrastructure.
- 3. Digital governance:**
 - Expand National Judicial Data Grid (NJDG) for real-time case monitoring.
 - Universal adoption of e-filing, NSTEP and virtual courts to reduce procedural delays.
- 4. Judicial impact assessment:** Make Judicial impact assessment mandatory before passing new laws to anticipate caseload impact and resource needs.
- 5. Independent oversight:** Create a statutory Judicial Complaints Commission to examine misconduct allegations while preserving judicial independence.

Conclusion:

Judicial independence must be complemented by transparent administration and accountable governance to sustain public trust in India's justice system.

'+1' Value Addition:

- Over 35% subordinate court vacancies persist nationally.
- Women constitute a small fraction (<15%) of higher judiciary and no woman has served as Chief Justice of India.
- Commercial Courts Act, 2015 introduced mandatory pre-institution mediation, improving case management in commercial disputes.

4. Discuss how prison overcrowding reflects the intersection of criminal justice inefficiencies and public health vulnerabilities in India. Suggest a multi-sectoral strategy to address the issue. (10M, 150 Words)

Prison overcrowding in India is not merely an administrative issue but reflects a deeper crisis at the intersection of criminal justice inefficiencies and public health vulnerabilities. The India Justice Report (IJR) 2025 highlights that prison occupancy stands at **131%**, exposing systemic gaps in justice delivery and inmate welfare.

Prison overcrowding as a reflection of Criminal Justice inefficiencies:

1. **High undertrial population:**
 - Around **65–70%** of prisoners are undertrials, indicating delays in investigation and trial.
 - Poor implementation of **Section 436A CrPC** leads to prolonged detention.
2. **Excessive and unnecessary arrests:** Despite guidelines in **Arnesh Kumar vs State of Bihar, 2014**, arrests continue even in minor offences.
3. **Inadequate legal aid:** Weak implementation of **Article 39A** results in ineffective representation, especially for marginalized groups.
4. **Judicial delays:** Case pendency and shortage of judges slow down trials, increasing prison population.

Public health vulnerabilities in overcrowded prisons:

1. **Spread of communicable diseases:** Overcrowding leads to poor sanitation and disease outbreaks like TB, and COVID-like risks.
2. **Severe healthcare shortages:** **43% vacancy** in medical officers; doctor-prisoner ratio is **1:775** vs **1:300** norm.
3. **Mental health crisis:** Only **25 psychologists** for **5.7 lakh** prisoners which means **1 per 22,000** inmates while mental illness cases doubled from **4,470** in **2012** to **9,084** in **2022**.
4. **Rising suicide cases:** Prison suicide rates are significantly higher than general population as per NHRC.

Multi-Sectoral strategy to address the issue:

1. **Criminal justice reforms:**
 - Promote bail reforms, plea bargaining, and non-custodial sentencing such as community service, and probation.
 - Strengthen implementation of **Section 436A CrPC** and fast-track courts.
2. **Legal aid strengthening:** Improve judge strength, lawyer-to-prisoner ratio and expand legal aid services under NALSA.
3. **Public health interventions:**
 - Recruit medical and mental health staff; adopt telemedicine and digital health records.
 - Integrate prisons into public health systems through NHM framework.
4. **Infrastructure & decongestion:**
 - Expand prison capacity and adopt open prisons and semi-open models.
 - Use ICT tools such as video conferencing to reduce undertrial delays.
5. **Improving governance:**
 - Regular collection of health and disability data.
 - Incentivise states for prison reforms and decongestion policies.

Conclusion:

Prison overcrowding is a manifestation of systemic failures across justice and health systems. Addressing it requires a **holistic, rights-based, and multi-sectoral approach**, ensuring that prisons uphold not just custody, but **dignity, health, and constitutional justice under Article 21**.

'+1' Value addition:

- Prison population projected to reach **6.8 lakh by 2030** while the capacity is only **5.15 lakh**.
- Rajasthan's **open prison system** (e.g., **Sanganer Open Jail**) allows selected prisoners to live with families and work outside.
- **e-Prisons Project**: Digitisation of prison records and inmate tracking across India.
- **Norway Prison Model (Halden Prison)** focuses on **rehabilitation, dignity, and humane conditions**. Norway has one of the **lowest recidivism rates of 20% globally**.

05. Critically examine the Central Armed Police Forces (General Administration) Bill, 2026 in the context of Centre-State relations. (10M, 150 Words)

The Central Armed Police Forces (General Administration) Bill, 2026 seeks to establish a uniform statutory framework governing recruitment, deputation, promotion, and service conditions of officers in CAPFs, which were earlier regulated through separate force-specific laws such as the CRPF Act, 1949; BSF Act, 1968; CISF Act, 1968; ITBP Act, 1992; and SSB Act, 2007, along with executive instructions.

Significance in the context of centre - state relations:

1. **Strengthening centre - state coordination:**
 - IPS officers, being part of an All-India Service, act as a **bridge between Union and State policing systems**.
 - Their presence in CAPFs ensures better coordination in areas like **counter-insurgency and law & order support**, where both Centre and States are involved.
2. **Ensuring uniformity:**
 - A statutory framework replaces fragmented executive instructions, bringing **standardisation across CAPFs**.
 - This helps the Centre maintain **coherent command structures**, especially during national security challenges.
3. **Reinforcing the role of All India Services (AIS):** By mandating IPS presence in senior ranks (IG, ADG, DG), the Bill strengthens AIS as instruments of **integrated governance across federal units**.

Concerns raised:

1. **Over-centralisation of power:**
 - The Bill empowers the Central Government to frame rules, which may **tilt the balance in favour of the Union**, reducing institutional autonomy of CAPFs.
 - States may perceive CAPFs as increasingly **centralised instruments** rather than collaborative forces.
2. **Tension with Judicial Directions:**
 - The Supreme Court (2025) had directed a **progressive reduction of IPS deputation** at certain levels.
 - The Bill's provisions mandating IPS presence may **dilute this intent**, raising constitutional concerns.

3. Autonomy and morale issues:

- High reservation of senior posts for IPS officers may **limit career progression** of CAPF cadre officers.
- This could lead to dissatisfaction and affect operational efficiency.

Way forward:

1. **Adopt a balanced deputation model:** Gradually increase **cadre-based** promotions while retaining IPS officers for coordination roles.
2. **Align with judicial principles:** Ensure the Bill respects the spirit of Supreme Court directions on reducing deputation.
3. **Strengthen CAPF institutional capacity:** Invest in training, leadership development, and career pathways within CAPFs.
4. **Promote consultative federalism:** Engage States and stakeholders in framing rules to maintain trust and cooperation.

Conclusion:

In a federal polity, internal security must be centrally coordinated but collaboratively governed. The Bill represents an important step towards **institutional clarity and improved governance of internal security forces**.

‘+1’ Value Addition:

- CAPFs deploy over 10 lakh personnel across internal security, border management, and counter-insurgency roles.
- The Indian Armed Forces follow a fully cadre-based promotion system, which can be replicated in CAPF system.
- In the United States, federal agencies like the FBI have internal career-based leadership pipelines.
- IPS officers occupy a disproportionately high share of top posts (IG and above) in CAPFs.

B. Economy

6. “Corruption is not merely a moral or legal issue but an economic problem and a strategic vulnerability.” Discuss in the context of India. (10M, 150 Words)

In India, despite strong constitutional institutions, persistent corruption affects **growth, governance credibility, and national security**, as reflected in India’s score of 39/100 in the Corruption Perceptions Index (2025).

Corruption as a moral and legal problem:

1. **Violation of ethical values:** Corruption undermines core values like integrity, honesty, and accountability in public life.
2. **Injustice and Inequality:** Corruption disproportionately harms the poor by denying them fair access to services and opportunities.
3. **Breach of rule of law:** Corruption involves offences such as bribery, embezzlement, and abuse of power, violating laws like the Prevention of Corruption Act.
4. **Undermining constitutional principles:** Violates principles of equality (Article 14) and fair governance, leading to arbitrary decision-making.

Corruption as an economic problem:

1. **Loss of economic output:** Corruption causes a loss of 1 - 1.5% of India's GDP annually. Funds meant for infrastructure, health, and education are diverted, reducing developmental outcomes.
2. **Distortion of markets:** Corruption increases **transaction costs and uncertainty** for businesses. It discourages **foreign investment and entrepreneurship**, affecting ease of doing business.
3. **Rise of rent-seeking:**
 - Economic actors focus on **regulatory manipulation rather than innovation**.
 - For example, complex compliance framework with **26,000+ imprisonment clauses** create discretion and rent extraction.
4. **Reduced growth potential:** Misallocation of resources leads to **suboptimal infrastructure and services**, slowing long-term growth.

Corruption as a strategic vulnerability:

1. **Erosion of institutional credibility:** Weakens trust in **judiciary, bureaucracy, and regulatory institutions**, undermining governance.
2. **Threat to national security:** Corruption in defence procurement or border management can **compromise security preparedness**.
3. **Impact on global competitiveness:** Poor governance affects **sovereign ratings, investment flows, and global partnerships**.
4. **Weakening of democratic accountability:** Undermines rule of law and creates **policy capture by vested interests**, affecting inclusive development.

Here are 4 focused measures to address corruption as an economic and strategic vulnerability (UPSC-ready, analytical + examples):

Measures needed:

1. **Regulatory simplification:** Rationalise complex laws and reduce **excessive compliance burden** (e.g., 26,000+ criminal provisions) to limit discretion
2. **Strengthening institutional capacity:** Ensure autonomy of **regulators, investigative agencies, and judiciary** to prevent political interference.
3. **Leveraging digital governance:** Expand **real-time monitoring systems, open data platforms, and AI-based audits**.
4. **Public Financial Management:** Strengthen **transparent procurement systems** such as GeM, e-tendering to reduce corruption in public spending.

Conclusion:

Corruption in India is not merely an ethical deviation but a **systemic economic drag and strategic risk**. Addressing it requires **institutional strengthening, regulatory simplification, and technology-driven transparency**, ensuring that governance reforms keep pace with economic growth.

'+1' Value Addition:

- Corruption leads to losses of **5% of global GDP (\$2.6 trillion)**, showing its scale as an economic problem.
- Over **26,000+ compliance-related criminal provisions** in India create regulatory complexity.
- RBI Digital Payments Index rose from **493 (March 2025) to 516 (Sept 2025)**, reflecting reduced cash-based corruption.

7. What do you understand by the “electrification of the economy”? Discuss its role in achieving energy security in India. (10M, 150 Words)

Electrification of the economy refers to the **progressive replacement of fossil fuel-based energy use with electricity** across sectors such as transport, industry, agriculture, and households. For India, which imports **85% of crude oil and 50% of natural gas**, electrification is critical for achieving **energy security, sustainability, and economic resilience**.

Role in achieving energy security in India:

1. **Reducing dependence on imported fossil fuels:** Electrification of transport and railways reduces oil demand. For example, Indian Railways has electrified **95% of its broad-gauge network**, cutting diesel use.
2. **Utilisation of domestic renewable energy:** Electricity enables large-scale use of solar and wind energy. For instance, India has installed **180 GW renewable capacity**, targeting **500 GW by 2030**.
3. **Higher energy efficiency:** Electric technologies are more efficient. For e.g., EVs have **70 - 80% efficiency vs 20 - 30% in ICE vehicles**. It leads to lower overall energy consumption.
4. **Decentralisation and energy access:** Promotes **rooftop solar, solar pumps, and microgrids**. For example, Solar pumps reduce diesel dependency in agriculture.
5. **Insulation from global price volatility:** Reduced reliance on imported fuels shields India from **global oil price shocks** as seen in the West Asia crisis.

Constraints in Electrification of the Economy:

1. **Storage limitations:** Renewable energy is intermittent. The lack of **adequate battery storage and grid flexibility** affects reliability.
2. **High initial costs:** EVs, solar installations, and storage systems involve **high upfront investment**, limiting adoption among lower-income groups.
3. **Dependence on critical minerals:** Electrification technologies such as batteries, EVs depend on imports of **lithium, cobalt, nickel**, creating new vulnerabilities.
4. **Discom financial stress:** Loss-making DISCOMs struggle to invest in infrastructure, affecting **quality and reliability of electricity supply**.

Government measures to Boost Electrification of the Economy:

- **FAME India Scheme (₹10,000 crore):** Promotes EV adoption. Over **1 crore EVs** registered.
- **PM-KUSUM Scheme:** Targets **30 lakh solar pumps** to replace diesel pumps.
- **Saubhagya Scheme:** Achieved **near-universal electrification (2.8 crore households)**.
- **National Smart Grid Mission:** Focus on **smart meters (250 million target)** and grid efficiency.
- **PLI Scheme for Advanced Chemistry Cells (₹18,100 crore):** Boosts battery manufacturing.
- **Green Hydrogen Mission (₹19,700 crore):** Electrifies hard-to-abate sectors.
- **PM Surya Ghar Yojana:** Targets **1 crore rooftop solar households**.

Conclusion:

Electrification is central to India's transition towards **energy security and sustainability**. A balanced approach integrating **renewables, storage, and institutional reforms** will be key to building a **resilient energy future**.

‘+1’ Value Addition:

- India aims for **50 GWh battery storage capacity by 2030**, which is crucial to support renewable-based electrification.
- Delhi EV Policy, 2020 led to **over 12% EV share in new vehicle registrations**.
- Sectors like steel are increasingly exploring **electric arc furnaces (EAFs)** instead of coal-based blast furnaces, reducing fossil fuel dependence.

8. The Washington Consensus defined the rules of the global economic order for nearly half a century. However, changing geopolitical and economic realities have exposed its limitations. Critically examine the reasons for the erosion of the Washington Consensus. (15M, 250 Words)

The **Washington Consensus**, a term coined by John Williamson in 1989, referred to a set of market-oriented reforms such as fiscal discipline, privatisation, deregulation and trade liberalisation. Supported by institutions like the International Monetary Fund and World Bank, it shaped the global economic order from the late 20th century by promoting neoliberal globalisation.

Reasons for the erosion of the Washington consensus:

1. **Social Backlash:** Market-led reforms often increased inequality rather than reducing it. For example, the **top 1% captured nearly 38% of global wealth growth between 1995–2021 (World Inequality Report)**. This triggered political backlash against globalisation in many countries.
2. **Economic Crises:** Deregulation of financial markets exposed economies to crises such as the Asian Financial Crisis and the Global Financial Crisis, undermining faith in unregulated markets.
3. **Deindustrialisation in advanced economies:** Deep trade liberalisation led to outsourcing of manufacturing. In the United States, manufacturing employment declined from **17 million in 2000 to around 12 million by 2010**, contributing to protectionist politics.
4. **Rise of state-led development models:** Countries like China achieved rapid growth through **state-led industrial policy**, challenging the assumption that minimal state intervention ensures development.
5. **Geopolitical issues:** Economic policy is increasingly shaped by national security concerns. For instance, technology export controls and supply-chain diversification after the COVID-19 pandemic reflect a shift from pure market logic to strategic economic policy.
6. **Limits of the “One-Size-Fits-All” approach:** Structural Adjustment Programmes imposed by global financial institutions often neglected local institutional capacities, leading to debt crises and social unrest in parts of Latin America and Africa.

Factors indicating its continued relevance:

1. **Persistence of global trade liberalisation:** Despite protectionist tendencies, global trade remains deeply integrated. For e.g., global merchandise trade still accounts for **around 50–60% of world GDP**.
2. **Role of international financial institutions:** Institutions like the International Monetary Fund and World Bank continue to advocate fiscal discipline, macroeconomic stability and market reforms in many developing economies.
3. **Expansion of global value chains:** Production networks still span over multiple countries. For e.g., countries in Southeast Asia have benefited from integration into supply chains in sectors such as electronics and automobiles.

Conclusion:

The erosion of the Washington Consensus reflects the transition from neoliberal globalisation to a more pragmatic and state-supported economic order. The emerging paradigm emphasises industrial policy, resilient supply chains, and inclusive growth, indicating that development strategies must be context-specific rather than universally prescribed.

‘+1’ Value Addition:

- The top 10% capture about 52% of global income, while the bottom 50% receive only around 8.5%.
- US manufacturing employment declined from 17.3 million in 2000 to around 12 million by 2010.
- After joining the World Trade Organization in 2001, China emerged as the largest manufacturing economy, accounting for nearly 30% of global manufacturing output.
- Following the 1991 economic reforms, India’s GDP growth rose from the “Hindu rate of growth” of 3-4% to around 6-7% annually.

9. What are the key issues plaguing India’s fertiliser sector? Suggest reforms to ensure food security and sustainability. (15 Marks, 250 words)

Fertilisers are crucial for agricultural productivity and food security. India is the second-largest consumer and third-largest producer of fertilisers globally, yet the sector faces structural challenges such as high import dependence, distorted subsidy policies, and environmental concerns.

Key issues in India’s fertiliser sector:

1. **Import dependence:**
 - India imports 95% of its phosphate requirement and 100% of potash due to lack of domestic reserves.
 - Fertiliser inputs like ammonia and sulphur are over 80% imported from Gulf countries.
2. **Imbalanced fertiliser use:**
 - India’s N:P:K ratio is highly skewed, far from the recommended 4:2:1 ratio, mainly due to subsidised urea.
 - Overuse of nitrogen causes soil nutrient depletion and micronutrient deficiency.
3. **Rising fiscal burden:**
 - Fertiliser subsidy is the second-largest subsidy after food, accounting for over 10% of central expenditure.
 - Subsidy bill may cross ₹2 lakh crore in FY27, driven by global price volatility and gas import costs.
4. **Structural Issues:**
 - 27 of 33 urea plants are older than 25 years, leading to inefficient production.
 - Dependence on foreign process technology increases costs and vulnerability.
5. **Environmental impact:** Excess fertiliser use leads to water contamination, soil degradation, and greenhouse gas emissions.

Reforms needed:

1. **Strengthen domestic production:** Implement New Investment Policy (NIP), 2012 and revive closed fertiliser plants to reduce import dependence.
2. **Rationalise subsidy framework:** Expand Nutrient Based Subsidy (NBS) and consider Direct Benefit Transfer (DBT) to farmers to promote balanced fertiliser use.

3. **Promote sustainable fertilisers:** Encourage nano fertilisers, neem-coated urea, bio-fertilisers, and schemes like PM-PRANAM.
4. **Improve monitoring:** Use digital systems like Integrated Fertilizer Monitoring System (iFMS) to prevent diversion and black marketing.

Conclusion:

A combination of domestic capacity expansion, subsidy rationalisation, and sustainable fertiliser practices will be essential to secure India's long-term food security and agricultural sustainability.

'+1' Value Addition:

- Agriculture supports **46%** of India's population and contributes **~16%** to GDP.
- Private sector accounts for **57%** of fertiliser production (2023-24), while PSUs contribute only **25%** of urea production.
- One 500 ml bottle of nano urea can replace a 45 kg bag of conventional urea, significantly reducing fertiliser consumption and logistics cost.
- **PM-PRANAM Scheme** incentivises states to **reduce chemical fertiliser consumption** by promoting alternative and balanced nutrient usage.
- **One Nation One Fertiliser (ONOF):** Under PMBJP, all subsidised fertilisers are sold under the 'Bharat' brand (Bharat Urea, Bharat DAP etc.) to ensure uniform quality and reduce marketing costs.

- 10. Liquefied Petroleum Gas (LPG) and Liquefied Natural Gas (LNG) are crucial for India's energy security and clean energy transition. In this context, examine the status of LPG and LNG in India and discuss the challenges associated with their supply chain. (15 Marks, 250 Words)**

Liquefied Petroleum Gas (LPG) and Liquefied Natural Gas (LNG) have become central to India's energy transition by promoting clean cooking, industrial growth, and lower carbon emissions. Government initiatives such as the Pradhan Mantri Ujjwala Yojana (PMUY) and expansion of LNG infrastructure have significantly increased access and consumption.

Status of LPG in India	Status of LNG in India
1. Expansion of clean cooking access: ○ LPG has emerged as the primary cooking fuel in India. Under PM Ujjwala Yojana, LPG coverage increased from 62% in 2016 to nearly 100% of households. ○ For e.g., India's LPG consumption nearly doubled between 2012 and 2023, indicating a major shift away from traditional fuels. 2. Domestic production and distribution: ○ Oil marketing companies such as Indian Oil Corporation (IOC) and Bharat Petroleum (BPCL) produce about 40% of India's LPG requirement domestically. ○ Expansion of bottling plants and LPG distributors has improved last-mile connectivity.	1. Natural gas in India's energy mix: Natural gas accounts for around 6% of India's energy basket, lower than the global average. India aims to increase this share to 15% by 2030. 2. Supply structure: About 50% of natural gas demand is met through domestic production, while the remaining 50% is imported as LNG. Qatar supplies nearly half of India's LNG imports. 3. LNG infrastructure expansion: LNG is imported through regasification terminals at major ports and transported through pipelines. For e.g., Projects like the Urja Ganga pipeline aim to expand the national gas grid and promote gas-based industries.

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| 3. High import dependence: Nearly 60% of India's LPG demand is met through imports. Most LPG shipments pass through the Strait of Hormuz, exposing India to geopolitical disruptions. | |
|---|--|

Challenges in LPG and LNG supply chain:

1. **Geopolitical risks:** Conflicts in West Asia can disrupt energy supplies and increase price volatility.
2. **Limited storage infrastructure:** India has limited LNG storage capacity, relying largely on immediate consumption after regasification.
3. **Inadequate pipeline infrastructure:** Regional imbalances exist, with pipeline networks concentrated in western India.
4. **Market Constraints:** LNG prices in Asia are highly volatile, as reflected in the JKM (Japan -Korea Marker) index.

Way Forward:

1. **Diversification of import sources:** Reduce dependence on West Asian suppliers by expanding LNG and LPG imports from the US, Australia, Russia and Africa.
2. **Expansion of reserves:** Develop underground gas storage facilities and larger LPG/LNG storage terminals to manage supply shocks.
3. **Strengthening Infrastructure:** Accelerate projects such as the Urja Ganga pipeline and expand the national gas grid to underserved regions.
4. **Boost Alternative fuels:** Encourage exploration of domestic gas reserves and coal-bed methane while promoting biogas and green hydrogen as complementary energy sources.

Conclusion:

LPG and LNG play a critical role in India's clean energy transition and energy security strategy. While initiatives such as PMUY and expansion of gas infrastructure have improved access and consumption, reducing import dependence, strengthening storage capacity, and expanding pipeline networks will be essential to build a resilient and sustainable gas-based economy.

'+1' Value Addition:

- **PM Ujjwala Yojana:** Over 9.6 crore LPG connections provided to poor households.
- **Natural Gas Advantage:** Electricity from natural gas emits about 54% less CO₂ than coal.
- **Qatar-India Energy Link:** LNG imports constitute nearly 60% of India-Qatar bilateral trade value.

11. **As farm loan waivers are frequently used as a policy response, critically assess their efficacy in addressing agrarian distress. Also, suggest sustainable alternatives for long-term agricultural resilience. (10M, 150 Words)**

Farm loan waivers refer to government schemes that cancel farmers' outstanding agricultural loans to reduce debt burdens. Over the last 35 years, the Centre and states have spent more than ₹3 lakh crore on such waivers.

Efficacy of farm loan waivers:**1. Short-term distress relief:**

- Loan waivers provide immediate relief to farmers affected by crop failures, price volatility, and rising input costs.
- For example, the **Agricultural Debt Waiver and Debt Relief Scheme** benefited **3.7 crore farmers** at a cost of about **₹72,000 crore**.

2. Stimulating rural consumption: Debt relief increases disposable income among farmers which can temporarily boost **rural demand and local economic activity**, particularly in agrarian regions.**3. Addresses farmer suicides:**

- Indebted farmers facing crop failures, falling prices, or mounting interest burdens may experience severe psychological distress triggering suicides.
- As per NCRB, over 11,000 farmers and agricultural labourers died by suicide in 2021, with indebtedness being a key contributing factor.

Limitations of farm loan waivers:

- 1. Weakening of credit culture:** Frequent waivers create **moral hazard**, encouraging strategic default. For e.g., agricultural **NPAs stood at about 8.44% in 2019**, partly reflecting repayment stress.
- 2. Limited coverage:** Waivers benefit only those with **institutional credit access**. Many small farmers depend on **informal lenders**, leaving them outside waiver schemes.
- 3. Fiscal burden:** Large-scale waivers strain public finances. For e.g., since **2014**, **states have announced waivers worth about ₹2.4 lakh crore**, roughly **1.4% of GDP**.
- 4. Opportunity cost foregone:** Funds spent on waivers reduce resources available for **irrigation, storage infrastructure, and agricultural research**.

Sustainable alternatives for long-term agricultural resilience:

- 1. Direct income support:** Schemes such as **PM-KISAN** provide **₹6,000 annually** to farmers, offering broader coverage.
- 2. Strengthening agricultural risk management:** **Pradhan Mantri Fasal Bima Yojana (PMFBY)** helps protect farmers from crop losses due to natural calamities.
- 3. Agricultural market reforms:** Expanding platforms such as **e-NAM** can improve price discovery and reduce dependence on intermediaries.
- 4. Institutional credit expansion:** Strengthening **Kisan Credit Card (KCC)** access and **Farmer Producer Organisations (FPOs)** can improve farmers' financial inclusion.

Conclusion:

A sustainable approach focussing on income support, risk mitigation, credit access, and agricultural reforms is needed to ensure long-term resilience of the farming sector.

'+1' Value Addition:

- **Agricultural Debt Waiver and Debt Relief Scheme, 2008** is the largest central waiver scheme benefiting 3.7 crore farmers.
- SBI Report points out that only around 50% of eligible farmers actually received waiver benefits from post-2014 schemes.
- **NABARD shows that many states announce waivers before elections** gaining political advantage.
- 2008 Agricultural Debt Waiver and Debt Relief Scheme led to a temporary decline in suicide rates in districts with higher waiver coverage.

C. International Relations

12. “India’s West Asia policy is a test of its strategic autonomy”. Evaluate this statement in light of the US–Israel–Iran conflict and its spillover into South Asia. (10M, 150 Words)

India’s West Asia policy has traditionally been guided by **strategic autonomy** and **multi-alignment**, balancing ties with Israel, Iran, and Gulf countries. The ongoing **US–Israel–Iran conflict**, now spilling into the Indian Ocean and South Asia, has made this balancing act more complex, turning it into a **litmus test** of India’s diplomatic maturity.

West Asia policy is a test of strategic autonomy:

1. **Balancing rival powers:** India must simultaneously engage **USA** as a strategic partner, **Israel** as a defence partner, and **Iran** as energy & connectivity partner. Thus, taking sides risks **strategic losses** on either front.
2. **Multi-Alignment under pressure:**
 - Conflict forces India to move beyond “multi-alignment” into **real-time crisis diplomacy**.
 - Maintaining neutrality amid **direct military escalation** is increasingly difficult.
3. **Energy dependence constraint:** With **85% oil imports** and **40–50% via Hormuz**, India’s policy choices are **economically constrained**, limiting strategic freedom.
4. **Diaspora sensitivity:** Presence of **9 million Indians in Gulf** means foreign policy must prioritize **safety over geopolitics**.
5. **Credibility as global south leader:** India’s stance is closely watched for consistency with principles of **sovereignty** and **non-intervention**. Any perceived tilt may weaken its **neutral mediator** image.

Implications of the conflict on South Asia:

1. **Energy shock:** Rising oil prices affect **India, Sri Lanka, Bangladesh**, worsening inflation and fiscal stress making neighbours to increasingly depend on India for fuel support.
2. **Remittance instability:** Around **25 million South Asians in West Asia**. Any disruption threatens **household incomes** and **foreign exchange reserves** in countries like **Nepal, Bangladesh, Pakistan**.
3. **Maritime security risks:** Conflict spillover into **Indian Ocean** (e.g., **IRIS Dena incident**) affects regional security. As **15% global seafarers are Indians**, it increases vulnerability.
4. **Supply chain disruptions:** West Asia supplies key inputs such as **fertilisers, sulphur, and gypsum** impacting **agriculture, construction, and industry** across South Asia.
5. **Diplomatic divergence:** Differences in stance among South Asian countries such as **India vs Maldives/Bangladesh** may **strain regional cohesion** challenging India’s **Neighbourhood First** policy.

Conclusion:

India’s West Asia policy exemplifies the **complexity of strategic autonomy** in a polarized world. Its success will depend on balancing **principled neutrality** with **pragmatic national interest**, reinforcing its role as a credible and stabilizing global power.

‘+1’ Value Addition:

- West Asia accounts for **\$98.7 billion** of India’s imports in 2025.
- Nearly **25 million South Asians** live in the region, underlining deep interdependence.
- South Asia imports over **60–80%** of its energy needs, and even a **\$10 increase** in crude prices can significantly widen current account deficits

13. What is the legal framework governing international maritime conflict. Analyse the challenges in regulating maritime conflicts in contemporary times. (10M, 150 Words)

Maritime conflict is governed by a combination of international maritime law, the UN Charter, and customary laws of naval warfare. With rising geopolitical tensions, such as the reported torpedoing of the Iranian warship IRIS Dena near Sri Lanka's EEZ in 2026 questions have emerged regarding the legality of naval attacks in international waters.

Legal framework governing maritime conflicts:

1. United Nations Convention on the Law of the Sea (UNCLOS):

- UNCLOS provides the legal basis for maritime governance, defining maritime zones and state rights.
- It establishes:
 - Territorial Sea – 12 nautical miles
 - Exclusive Economic Zone (EEZ) – 200 nautical miles
 - High Seas – beyond national jurisdiction
- For e.g., the attack on IRIS Dena reportedly occurred near Sri Lanka's EEZ, where coastal states possess resource rights but limited sovereignty.

2. UN Charter Provisions on Use of Force:

- Article 2(4) prohibits the use of force against another state.
- Article 51 allows self-defence in case of an armed attack.
- Military force may also be authorised by the UN Security Council under Chapter VII.
- For e.g., attacking a foreign warship on the high seas may be unlawful unless justified as self-defence or part of an ongoing armed conflict.

3. Law of Naval Warfare and Customary International Law:

- Naval warfare rules operate alongside UNCLOS during armed conflict.
- Warships of belligerent states may be considered legitimate military targets, even if not actively engaged in combat.
- For e.g., Submarine torpedo attacks such as the sinking of Argentina's cruiser General Belgrano during the Falklands War (1982).

Challenges in regulating maritime warfare:

1. Lack of clear codified rules:

- UNCLOS does not explicitly regulate naval warfare operations, creating legal ambiguity.
- Rules largely depend on customary international law and state practice.

2. Ambiguities in EEZ military operations:

- Coastal states have economic rights but not full sovereignty in EEZs.
- Military operations by foreign states are not clearly prohibited.
- For e.g., the IRIS Dena incident near Sri Lanka's EEZ highlights these grey areas in maritime jurisdiction.

3. Expansion of Conflict Zones into global sea lanes:

- Modern conflicts increasingly extend into international waters and chokepoints.
- For e.g., strategic routes such as the Strait of Hormuz, which carries around 20% of global oil trade, are highly vulnerable during conflicts.

4. Technological transformations:

- Use of submarines, drones, and long-range torpedoes complicates attribution and enforcement of maritime law.
- For e.g., the Mark-48 torpedo, widely used by submarines, can sink large warships through underwater explosions.

Conclusion:

International frameworks such as UNCLOS and the UN Charter provide the foundational rules for maritime governance. Strengthening international norms for naval warfare and maritime security cooperation is essential to prevent escalation and safeguard global trade routes.

‘+1’ Value Addition:

- **San Remo Manual (1994)** is the most authoritative non-binding document governing law of naval warfare, detailing rules on blockade, targeting of warships, and protection of neutral vessels.
- **Hot Pursuit Doctrine (UNCLOS Article 111)**: Allows a coastal state to pursue and arrest a foreign vessel that violates its laws within its maritime zones, even into the high seas.
- **International Maritime Organization (IMO)**: A specialised UN agency that regulates maritime safety, security and pollution, indirectly shaping norms during maritime tensions.
- **Operation Sankalp (2019)**: India deployed naval ships in the Persian Gulf to escort merchant vessels during Iran-US tensions, highlighting India's maritime security role.
- **MILAN Naval Exercise**: A major multilateral naval exercise hosted by India, aimed at strengthening maritime cooperation in the Indo-Pacific.

14. In the context of the severe implications of the West Asian crisis on India's interests, discuss how India can secure its strategic interests. (15 Marks, 250 Words)

West Asia has entered a phase of heightened instability due to the escalating conflict involving Iran, Israel, and the United States, which has expanded beyond the region into maritime zones such as the Red Sea and the Indian Ocean. The conflict has disrupted shipping routes, threatened the Strait of Hormuz, and triggered volatility in global energy markets.

Implications of the West Asian conflict for India:

1. Energy security vulnerabilities:

- India imports over 85–88% of its crude oil, with nearly 50% sourced from West Asia.
- Around 2.5–2.7 million barrels per day of Indian crude imports pass through the Strait of Hormuz, making supply chains highly vulnerable.

2. Supply chain disruptions:

- The Red Sea–Suez route carries a large portion of India's trade with Europe.
- Attacks on shipping vessels have increased insurance costs, freight charges, and delivery delays.

3. Macroeconomic pressures:

- Rising oil prices can increase inflation, fiscal deficit, and current account deficit (CAD).
- Every \$10 rise in crude prices increases India's import bill by roughly \$15 billion annually.

4. Diaspora concerns:

- West Asia hosts nearly **9 million Indians**, whose remittances exceed **\$40 billion annually**.
- Escalation could require evacuation operations. For example, **Operation Rahat** evacuated thousands of Indians from Yemen.

5. Connectivity risks: Projects like **Chabahar Port** and the **India–Middle East–Europe Economic Corridor (IMEC)** may face disruptions due to regional instability.**Ways for India to ensure strategic interests:****1. Diversification of energy sources:**

- Increase imports from **Russia, the US, Brazil, and Africa** to reduce reliance on West Asia.
- Accelerate **renewable energy expansion** and **green hydrogen initiatives**.

2. Expansion of strategic petroleum reserves:

- Enhance storage capacity beyond the existing reserves capable of meeting **about 6 - 8 weeks of demand**.
- Encourage **private and decentralized energy storage systems**.

3. Strengthening maritime security:

- Expand naval missions such as **Operation Sankalp** to protect Indian shipping lanes.
- Enhance **maritime domain awareness** using **satellites and drones**.

4. Balanced engagement:

- Maintain strategic autonomy by engaging with **Israel, Iran, Gulf states, and the US** simultaneously.
- Promote dialogue and de-escalation through **multilateral forums**.

5. Alternative connectivity corridors:

- Operationalize the **International North–South Transport Corridor (INSTC)**.
- Strengthen connectivity through **Chabahar Port** to bypass volatile maritime chokepoints.

6. Protecting diaspora interests:

- Develop evacuation contingency plans and strengthen diplomatic coordination with **Gulf governments**.
- Secure remittance channels and employment protection for **Indian workers**.

Conclusion:

A proactive approach aligns with India's evolving **"Look West" policy**, which seeks deeper engagement with West Asia is needed to ensure regional stability and secure India's strategic and economic priorities.

'+1' Value Addition:

- India imports **88% of its crude oil**, with nearly **50% sourced from West Asia** as per IEA data.
- The **Strait of Hormuz** carries **20% of global oil trade**, and about **2.5–2.7 million barrels/day** of India's imports pass through it.
- Nearly **9 million Indians** live in **West Asia**, contributing significantly to India's **\$120+ billion remittances**.
- India currently maintains **5.3 million tonnes** of crude oil reserves at **Visakhapatnam, Mangaluru, and Padur**.
- The **International North–South Transport Corridor (INSTC)** can reduce transport time by **40%** and costs by **30%**.

- 15. The ongoing West Asian crisis, involving Iran, Israel and the United States, has far-reaching implications. Examine its multi-faceted impacts for India and the world at large. (10M, 150 Words)**

West Asia remains central to global energy flows and geopolitical stability. The Strait of Hormuz alone handles nearly 20 million barrels of crude oil per day which constitute 20% of global consumption and 20 - 30% of global LNG trade. Escalation involving Iran, Israel and the US has therefore triggered global energy volatility, and supply-chain disruptions.

Global multi-faceted impacts:

- 1. Energy security:**
 - Any disruption of the **Strait of Hormuz**, through which a major share of Gulf oil transits, can sharply spike prices.
 - For e.g., vessel traffic dropped by **70%** during peak tensions, with **55 oil tankers stalled** in Iranian waters.
- 2. Supply Chain disruptions:**
 - Militarisation of Red Sea and Gulf routes affects Asia - Europe trade via the **Suez Canal**.
 - Freight and insurance premiums have surged while global exports and energy shipments face delays.
- 3. Financial market volatility:**
 - Surge in “war premium” in oil markets and gold prices rise as safe-haven demand increases.
 - Regional stock exchanges like Dubai witnessed trading disruptions.
- 4. Geopolitical polarisation:** The crisis risks deepening blocs such as US-Israel alignment versus Iran backed by Russia and China, accelerating fragmentation of the global order.

Implications for India:

- 1. Energy security vulnerability:** India imports **85 - 90% of its crude oil**. For e.g., In February, crude imports stood at **5.22 million barrels/day**, with **51% from West Asia**.
- 2. Macroeconomic impact:** Prolonged oil price spikes could widen Current Account Deficit (CAD), fuel inflation and increase fiscal burden due to subsidy/tax interventions.
- 3. Diaspora concerns:** Nearly **9 million Indians** reside in West Asia whose evacuation poses humanitarian and logistical challenges.
- 4. Connectivity disruptions:** Projects like **Chabahar Port**, Iran and the **India-Middle East-Europe Corridor (IMEC)** face uncertainty amid militarisation of Gulf waters.

Measures needed:

- 1. Diversify energy buffers:** Immediately operationalise and expand Strategic Petroleum Reserves (SPR) beyond current capacity.
- 2. Strengthen maritime security:** Secure alternative shipping routes and long-term freight contracts to cushion tanker-rate volatility.
- 3. Accelerate energy transition:** Promote ethanol blending (20% target), green hydrogen, electric mobility and boost domestic gas exploration under OALP to reduce LNG dependence.
- 4. Diplomatic engagement:** Maintain strategic autonomy by engaging US, Israel, Iran, and Gulf states simultaneously and prepare evacuation SOPs for diaspora.

Conclusion:

As India asserts that “this is not an era of war,” it must simultaneously secure national interests while advocating de-escalation and stability.

‘+1’ Value Addition:

- Strait of Hormuz handles about 20% of global oil trade.
- India’s exports worth \$44.4 billion also depends partly on Suez route stability.
- Vessel traffic through Hormuz fell by 70% due to tensions.

D. Science and Technology

- 16. Algorithmic design in digital platforms has been compared to a “dopamine-driven attention economy.” Explain how platform design influences user behaviour. Discuss the need for regulatory oversight. (15M, 250 Words)**

The “dopamine-driven attention economy” refers to a system where digital platforms compete to capture and monetise user attention by triggering repeated dopamine releases in the brain’s reward system. Dopamine, a neurotransmitter linked to pleasure and motivation, is released during rewarding experiences, reinforcing behaviour.

Digital platforms as a Dopamine-driven system:

1. **Intermittent Reward Mechanism:** Platforms use unpredictable rewards (likes, comments), similar to casino slot machines, reinforcing compulsive behaviour.
2. **Algorithmic Personalisation:** AI-driven feeds curate highly engaging content, maximising emotional stimulation and time spent.
3. **Addiction-like Neural Response:** Studies show social media activates brain regions similar to substance addiction (nucleus accumbens), indicating behavioural dependency.

Influence of platform design on user behaviour:

1. **Creation of habit loops:** Notifications, streaks, and rewards create **cue–routine–reward cycles**, making users repeatedly engage. For example, push notifications trigger compulsive checking behaviour.
2. **Cognitive fragmentation:** Constant switching between apps reduces deep focus. For example, average human attention span has dropped to **8.25 seconds** as per Microsoft study.
3. **Emotional manipulation:**
 - Algorithmic amplification of curated content leads to **envy, anxiety, and validation-seeking behaviour**.
 - For e.g., UNICEF study points out that **43% adolescents report mood fluctuations linked to social media**.
4. **Behavioural Nudging and Consumerism:** Platforms nudge users towards **impulsive purchases, content consumption, and ideological reinforcement**. For example, targeted ads based on behavioural data.
5. **Polarisation and Echo chambers:** Algorithms prioritise engaging (often extreme) content, reinforcing confirmation bias and ideological bubbles.

Regulatory oversight needed:

1. **Algorithmic transparency:** Mandate disclosure of how recommendation algorithms work to prevent manipulation and bias.
2. **Ethical Tech:** Enforce design standards such as auto time limits, default notification restrictions, and no dark patterns.
3. **Protection of vulnerable groups**
 - Introduce age-based restrictions, parental controls, and limits on addictive features.
 - For example, APA (2023): Teens using social media more than 3 hrs/day show 60% higher depression risk.
4. **Data Governance:** Strengthen regulations on data usage, targeted advertising, and behavioural profiling. For example, EU's Digital Services Act as a model for India.

Conclusion:

Algorithmic design has transformed digital platforms into powerful tools that shape human behaviour, attention, and decision-making. Therefore, a balance between innovation and ethical regulation is essential to ensure that technology serves human well-being rather than exploiting it.

'+1' Value Addition:

- 63% adults face phone-separation anxiety, indicating digital dependency and withdrawal-like symptoms
- Teens using social media for more than 3 hrs/day have 60% higher depression risk.
- 52% youth struggle with motivation without digital input as per Cambridge study, showing reduced intrinsic drive
- China limits gaming for minors to 3 hours/week to address digital addiction

E. Society & Social Justice

- 17. Protecting children from online harm often requires restrictions on their digital freedom. Discuss the ethical tensions between child protection and digital autonomy in the context of proposals to ban social media for children. (10M, 150 Words)**

India has 500+ million social media users, while cybercrimes against children have increased by over 400% between 2019 - 2023 as per NCRB. Proposals to ban social media for children therefore raise ethical tensions between protecting vulnerable individuals and respecting their digital autonomy and rights.

Ethical justifications for restricting social media:

1. **Principle of non-maleficence:**
 - Excessive social media use is linked to anxiety, depression, and low self-esteem.
 - Studies show children aged 10 - 15 spend 4 - 6 hours daily on social
2. **Duty of care and child welfare:**
 - Around 7 in 10 children report exposure to harmful content, including violence or self-harm material.
 - Governments therefore have an ethical obligation to act in the best interests of the child, consistent with the UN Convention on the Rights of the Child (CRC).

3. Protection from exploitation:

- Social media platforms often rely on **engagement-driven algorithms** that maximise screen time that often increases compulsive usage by **30–40%**.
- Ethical governance requires protecting children from such manipulative technologies.

Ethical concerns with a complete ban:

1. **Freedom of Expression:** A blanket ban may restrict children's **freedom of expression and access to information**, which are essential democratic values.
2. **Social Support:**
 - Social media can provide **educational resources and peer networks**.
 - For e.g., Many **LGBTQIA+ youth** rely on **online communities** for emotional support where offline spaces are restrictive.
3. **Surveillance risks:** Age-verification mechanisms requiring **biometric or identity data** may compromise privacy and expose children to data breaches.

Balancing child protection and digital autonomy:

1. **Age-Appropriate platform design:** Governments should mandate child-friendly design standards. For e.g., The UK Age-Appropriate Design Code requires platforms to minimise data collection and harmful content exposure.
2. **Strengthening regulatory safeguards:** India's **Digital Personal Data Protection Act (2023)** mandates **verifiable parental consent for users under 18** and prohibits profiling of children.
3. **Digital Literacy:** Educating children and parents on responsible digital behaviour is essential. For example.g., **Kerala's Digital De-Addiction (D-DAD) Centres** support children struggling with digital addiction.
4. **Accountability of tech:** Platforms must implement stronger **content moderation, algorithm transparency, and grievance mechanisms** under the IT Rules 2021.

Conclusion:

A balanced approach rooted in **child welfare, responsible technology governance, and digital literacy** can safeguard children while preserving their rights and opportunities in the digital age.

'+1' Value addition:

- Jonathan Haidt's "Great Rewiring of Childhood" Thesis argues that smartphones and social media have reshaped childhood experiences, contributing to rising youth anxiety and depression since 2010.
- "Ethics of Care" Framework by Carol Gilligan emphasises protecting vulnerable groups like children through supportive governance rather than purely rights-based regulation.
- Digital Childhood Report (UNICEF) highlights that 1 in 3 internet users globally is a child.
- UNESCO Digital Citizenship Framework: Promotes digital literacy, critical thinking, and responsible online participation rather than outright technological prohibition.

18. “Tuberculosis is as much a social disease as it is a medical condition”. Analyse this statement with reference to stigma, mental health, and inequalities in access to care. (10M, 150 Words)

Tuberculosis (TB), caused by *Mycobacterium tuberculosis*, is not merely a biomedical disease but deeply rooted in **social determinants** such as **poverty, malnutrition, stigma, and inequality**. India, which accounts for **25% of global TB cases (WHO)**, exemplifies how TB is as much a **social disease as a medical condition**.

TB as a medical condition:

1. Infectious Disease:

- Tuberculosis is caused by the bacterium *Mycobacterium tuberculosis* and primarily affects the lungs (pulmonary TB).
- It spreads through airborne droplets, making it a classic communicable disease requiring medical diagnosis and treatment.

2. Standardised diagnosis:

- TB management follows well-defined medical protocols under programmes like NTEP, including molecular diagnostics (NAAT), and drug susceptibility testing.
- Standardized drug regimens such as first-line therapy and newer BPaLM regimen are used for drug-resistant TB.

3. Drug resistance: The emergence of MDR-TB and XDR-TB reflects biological and pharmacological challenges, requiring longer, more toxic, and expensive treatments.

TB as a Social Disease:

1. Stigma and social exclusion:

- TB patients often face **social ostracisation, job loss, and discrimination**, especially women and migrants.
- Fear of stigma leads to **delayed diagnosis and poor treatment adherence**.

2. Mental health burden:

- TB patients suffer from **anxiety, depression, and isolation**, aggravated by long treatment duration.
- Lack of mental health professionals in primary care further worsens outcomes.

3. Inequalities in access to care:

- TB disproportionately affects the **poor, malnourished, and urban slum populations**.
- Malnutrition increases TB risk by **6 - 8 times**, showing strong socio-economic linkage.
- Rural areas face **diagnostic gaps and digital divide**, limiting access to tools like Nikshay portal.
- For example, cases in remote areas like **Gurez valley (Kashmir)** revealed hidden burden due to poor access.

4. Poor living conditions:

- Overcrowded housing and poor ventilation (e.g., **higher TB prevalence in Mumbai slums**) lead to higher transmission.
- Co-morbidities like diabetes (e.g., **25% TB patients in Tamil Nadu**) complicate treatment.

Measures to address TB as a social disease:

1. Social support:

- Strengthen schemes like **Nikshay Poshan Yojana (₹1,000/month DBT)** to improve nutrition and treatment adherence.
- Expand **Pradhan Mantri TB Mukh Bharat Abhiyaan (Ni-kshay Mitra)** where individuals/NGOs “adopt” TB patients for nutritional and social support.

2. Community awareness:

- Conduct mass awareness campaigns via **ASHA workers** and **local self-help groups** to normalize TB as a treatable disease.
- Use IEC campaigns under **NTEP** to counter myths and discrimination.

3. Improve last-mile access:

- Strengthen primary healthcare through **Ayushman Arogya Mandirs** for decentralized TB services.
- Deploy **AI-enabled portable X-ray units** and mobile screening for remote areas.

4. Improve living conditions: Integrate TB care with housing, sanitation (**Swachh Bharat**), and livelihood schemes to address root causes.**Conclusion:**

A **people-centred, nutrition-focused, and equity-driven approach** is essential to achieve India's goal of TB elimination by 2025. Ending TB requires going beyond pills to addressing poverty, nutrition, stigma, and living conditions.

'+1' Value addition:

- India's TB incidence reduced from **237 in 2015 to 187 per lakh by 2024**.
- **Treatment coverage 92%**, yet social barriers remain major bottlenecks.
- High TB prevalence in **poorly ventilated Mumbai slums** is **8 - 10% vs 1%** shows link with living conditions.
- India accounts for **32% of global MDR/RR-TB burden**, showing clinical challenge.

19. Despite a robust legal and policy framework, persons with disabilities (PwDs) in India continue to face significant barriers to inclusion. Discuss. What measures can be adopted to address those barriers?

As per the Census 2011, India has about 2.68 crore (26.8 million) PwDs, accounting for 2.21% of the population, though estimates like WHO suggest the actual prevalence may be much higher due to underreporting.

Barriers to inclusion for the disabled:**1. Attitudinal barriers:**

- Persistent **stigma, stereotyping, and discrimination** in society.
- PwDs often reduced to objects of pity, leading to **loss of identity and dignity**.

2. Accessibility constraints:

- Inadequate **barrier-free infrastructure and transport systems**.
- For example, large interstate variation - many buses and public spaces remain inaccessible.

3. Educational barriers:

- Lack of **inclusive schools, trained teachers, and accessible learning materials** such as Braille, audio.
- High dropout rates among children with disabilities.

4. Employment challenges:

- **Low workforce participation**; private sector reluctance due to productivity myths.
- Even mandated **4% reservation** in jobs remains under-implemented.

5. **Healthcare Gaps:**
 - Limited access to rehabilitation, mental healthcare, and assistive devices.
 - Rural PwDs who often constitute 69% face severe service deficits.
6. **Implementation deficit:**
 - Weak enforcement of RPwD provisions as supreme court also flagged lack of enforceable accessibility standards.
 - Delays in appointment of State Disability Commissioners.

Measures to address barriers:

1. **Strengthening accessibility:**
 - Implement mandatory, time-bound accessibility standards for buildings, transport, and digital platforms.
 - Scale up Accessible India Campaign.
2. **Inclusive education:**
 - Promote universal design in education, assistive technologies, and special educator training.
 - Ensure effective implementation of 5% reservation in higher education.
3. **Economic empowerment:**
 - Incentivise private sector hiring; expand skill development and entrepreneurship schemes.
 - Strengthen role of institutions like National Divyangjan Finance Corporation.
4. **Social sensitisation:** Awareness campaigns to reduce stigma; adopt “Nothing about us, without us” approach in policymaking.
5. **Technological interventions:** Promote digital accessibility, AI-based assistive tools, and affordable devices (ADIP scheme).

Conclusion:

True inclusion of PwDs requires a shift from welfare to rights-based empowerment, combining legal enforcement, social change, and technological innovation. This is essential to realise inclusive growth and constitutional equality.

‘+1’ Value Addition:

- PwDs constitute 2.21% of population as per Census 2011, but actual prevalence may be higher (WHO: 16% adults).
- India recognised 21 disabilities under RPwD Act, 2016, up from 7 earlier making a shift towards inclusive definition.
- Reservation increased to 4% in government jobs and 5% in higher education under RPwD Act.
- Highest disability concentration in 10–19 age group (46.2 lakh) having long-term impact on human capital.

F. Geography

20. Describe the global distribution of uranium resources and examine the distribution of uranium deposits in India. Why does uranium availability remain a strategic challenge for India? (10, 150 words)

Uranium is a radioactive metal (Atomic number 92) and the primary fuel for nuclear power generation. Its distribution across the world is highly uneven and concentrated in a few regions.

Global distribution of Uranium:**1. Geographical concentration:**

- Global uranium production is concentrated in a few countries. A small number of countries dominate global uranium supply chains.
- For e.g., **Kazakhstan** is the largest producer, contributing about **32% of global output**, largely through **in-situ leaching technology** while **Canada (20%)** and **Australia (16%)** are other major producers.

2. Major Uranium resource regions:

- Some regions contain exceptionally high-grade uranium deposits forming the backbone of global uranium production.
- For e.g., **Athabasca Basin (Canada)** hosts the world's richest uranium ores, while **Olympic Dam (Australia)** is the largest known uranium deposit globally.

3. Uneven distribution:

- Global uranium reserves are unevenly distributed creating supply dependencies.
- For e.g., **Australia holds about 31% of the world's uranium reserves**, the largest share globally.

Distribution of Uranium in India:**1. Jharkhand Uranium Belt (Singhbhum Shear Zone):**

- The **Singhbhum Shear Zone in Jharkhand** forms India's oldest and most productive uranium belt.
- Major mines include **Jaduguda** (India's first uranium mine), **Narwapahar**, **Bhatin**, and **Turamdih**

2. Southern India Uranium deposits:

- **Tummalapalle (Andhra Pradesh)** is one of India's largest uranium deposits discovered in recent decades.
- **Lambapur-Peddagattu (Telangana)** is another important site located between **Seshachalam forests** and **Srisailem region**.

3. Northeastern Uranium deposits: Uranium deposits are also found in **Meghalaya**, particularly in regions like **Domiasiat / Kylleng-Pyndengsohiong deposits****Uranium availability challenge for India:**

- Low-Grade Reserves:** Indian uranium ores generally have **low concentration**, making mining and processing costly.
- High Import Dependence:** India produces only about **1% of global uranium** and imports fuel from **Kazakhstan, Russia, Canada, and France** to sustain nuclear reactors.
- Growing demand:** India plans to expand nuclear power under its **three-stage nuclear programme**, which increases demand for uranium in the short and medium term.
- Environmental constraints:** Mining projects often face **ecological concerns and local protests**, delaying exploitation of deposits.

Conclusion:

India needs to ensuring long-term nuclear energy security through a combination of domestic exploration, international uranium partnerships, and utilisation of India's large thorium reserves.

'+1' Value Addition:

- Natural uranium contains **99.27% U-238** and **0.72% U-235** (the fissile isotope used in reactors).
- India has the **world's largest thorium reserves**, forming the basis of its **three-stage nuclear programme**.
- **Kazakhstan's in-situ leach mining** revolutionised uranium production after 2009.

G. Internal Security

**21. "The containment of Naxalism in India is as much a developmental success as a security achievement."
Discuss. (10M, 150 Words)**

Left Wing Extremism (LWE), originating from the **Naxalbari uprising of 1967**, has long posed a serious internal security challenge rooted in **tribal alienation, underdevelopment, and governance deficits**. Recent trends, however, show a **sharp decline in violence and spread**, indicating that its containment is both a **security success and a developmental achievement**.

LWE containment as a security achievement:

1. **Sharp decline in violence:** Incidents have reduced by over **80% since 2010**, with significant fall in casualties
2. **Reduced geographical spread:** Affected districts have come down from over **200 to around 38–45**, limiting Maoist influence.
3. **Effective security operations:** Operations like **Green Hunt**, deployment of **COBRA** and **Greyhounds**, and use of technology (drones, surveillance) weakened insurgents.
4. **Disruption of support networks:** Crackdown on **urban Maoist networks** and **financing channels** reduced organisational capacity.

LWE containment as a developmental success:

1. **Improved connectivity and infrastructure:** Roads, telecom, and banking access reduced isolation of tribal regions.
2. **Targeted financial support:** Schemes like **Special Central Assistance (₹30 crore per district)** boosted local development.
3. **Empowerment through rights-based laws:** **PESA** and **FRA** addressed tribal grievances related to land and forest rights.
4. **Successful rehabilitation:** Over **8,000 Naxalites surrendered**, supported by livelihood and reintegration schemes.
5. **Better service delivery:** Expansion of schools, healthcare, and welfare schemes reduced dependence on insurgents.

Challenges:

1. **Socio-economic grievances:** Issues like **land alienation, displacement due to mining, and lack of livelihood opportunities** continue to create resentment in tribal areas.
2. **Residual strongholds in difficult terrain:** Maoist presence remains concentrated in dense forest regions like **Bastar**, where terrain limits state access and control.

3. **Governance deficits:** Weak implementation of welfare schemes and lack of administrative presence still create trust deficits between state and local communities.
4. **Risk of ideological resurgence:** Maoist ideology can still appeal to marginalised youth if development slows or governance gaps widen, especially through covert urban networks.

Conclusion:

Going ahead, India must consolidate gains through a balanced approach- deepening development in tribal areas, ensuring effective implementation of PESA and FRA, strengthening local governance, and continuing targeted security operations.

‘+1’ Value Addition:

- **Bastar model:** Forward security camps combined with road construction have reduced Maoist mobility and strengthened state presence in core areas.
- **Andhra Pradesh example:** The Greyhounds force and intelligence-led policing virtually eliminated Maoist influence, becoming a benchmark model.
- **Aspirational Districts Programme:** Districts like Dantewada have shown improvements in health, education, and financial inclusion, linking development with decline in extremism.
- Installation of 5,000+ mobile towers in LWE areas improved governance outreach and intelligence flow.

22. The Vibrant Villages Programme (VVP) seeks to transform border villages into centres of development and security. In this context, discuss the significance of the Vibrant Villages Programme in addressing the problem of last-mile connectivity in India’s border regions. (10 Marks, 150 Words)

The Vibrant Villages Programme, announced in the Union Budget 2022–23, aims at the comprehensive development of villages along India’s northern borders. Covering nearly 2,963 villages in Arunachal Pradesh, Sikkim, Uttarakhand, Himachal Pradesh and Ladakh, the programme seeks to improve the quality of life in border areas while strengthening national security.

Significance of the Vibrant Villages Programme:

1. **Strengthening border security:** Development of border villages ensures a permanent civilian presence, acting as the country’s first line of defence.
2. **Reversing outmigration:** Lack of livelihood opportunities has led to migration from remote villages. Thus, VVP aims to create economic opportunities through tourism, agriculture, and entrepreneurship.
3. **Promoting local development:** It encourages eco-agriculture, medicinal plant cultivation, and One Village–One Product initiatives with a focus on tourism and local cultural heritage.
4. **Strategic infrastructure development:** Infrastructure projects such as the Shinku-La tunnel provides all-weather connectivity to Ladakh, strengthening logistics and defence mobility.

How the Programme addresses last-mile connectivity:

1. **Expansion of road connectivity:** Construction of roads to previously unconnected border villages.
2. **Digital connectivity:** Provision of television and telecom infrastructure, improving access to information and government services.

3. **Energy access:** Expansion of renewable energy and electricity infrastructure to remote villages.
4. **Integrated village development:** Development of housing, community infrastructure, and public services through Vibrant Village Action Plans prepared by district administrations.
5. **Saturation of government schemes:** Ensures 100% coverage of central and state welfare schemes in border villages, improving service delivery.

Conclusion:

The Vibrant Villages Programme represents a strategic shift from viewing border villages as the “last villages” to the “first villages of India.” By improving infrastructure, livelihoods, and connectivity, the programme strengthens both human security and national security, ensuring balanced regional development in frontier areas.

‘+1’ Value Addition:

- **VVP-II (2025)** expands the programme with an outlay of ₹6,839 crore, covering villages along other international land borders.
- Nearly 3,000 villages across 19 border districts are targeted under the programme.
- The Shinku-La Tunnel (4.1 km) on the Nimu–Padam–Darcha road will provide all-weather connectivity to Ladakh.
- The programme promotes “One Village–One Product” and eco-agriculture, similar to rural development models used in Japan and Thailand

H. Ethics

- 23. You are the author of an NCERT textbook chapter discussing judicial delay, accountability, and corruption based on publicly available sources. The Supreme Court orders removal of the chapter and bars you from future academic and government work. The decision sparks debate on freedom of expression, institutional integrity, and accountability. (250 Words, 20M)**

QUESTIONS:

- (a) Identify the key ethical issues and stakeholders involved.
- (b) Analyse the situation using various normative ethical frameworks.
- (c) Suggest a balanced and ethical course of action.

The case highlights a conflict between academic freedom and institutional integrity, where an NCERT author’s fact-based critique of judicial delays and accountability leads to punitive action by the judiciary. It raises critical ethical questions on freedom of expression, proportionality, and the responsibility of educational content in shaping public trust in democratic institutions.

(a) Key Ethical issues:

1. **Freedom of Expression vs Institutional Integrity:** Right to present facts vs need to maintain public trust in judiciary.
2. **Truth vs Responsibility in Public Education:** Ethical duty to present facts (pendency, undertrials 70–75%) vs risk of creating institutional cynicism among students.
3. **Accountability vs Judicial Independence:** Who holds judiciary accountable without undermining its independence.
4. **Proportionality of punishment:** Barring the author from future work raises concerns of fairness and excessive punishment.
5. **Duty of care in education:** NCERT’s responsibility to ensure balanced, age-appropriate, and unbiased content.

Stakeholders involved:

- **Students:** Acquire formative understanding of institutions from books.
- **Author:** Needs to ensure academic freedom and professional integrity
- **Judiciary:** Institutional credibility and authority
- **NCERT / Government:** Responsibility for curriculum design
- **Citizens:** Right to informed and balanced education

(b) Ethical analysis using normative frameworks:

1. **Deontological Ethics (Duty-based):** NCERT's duty is to present **truth and facts objectively**. Judiciary's duty is to protect **institutional dignity**. Thus, there is a conflict between **truth-telling vs institutional respect**.
2. **Utilitarianism (Consequences):** Awareness about delays promotes reform and course correction. However, it may reduce **public trust in judiciary**, harming rule of law. Thus, the ethical action should be to **maximize public trust and awareness simultaneously**.
3. **Virtue Ethics:** The author needs to work with Integrity, honesty, and courage while the Judiciary needs to be prudent, tolerant, and fair. Both sides must act with **balance, restraint, and wisdom**.
4. **Constitutional Ethics:** There is a need to uphold Article 19 (freedom of expression) and Article 21 (access to justice). It also requires **respect for institutions under separation of powers**. There is a need to emphasize **accountability without delegitimization**.
5. **Ethics of Care:** There is a need to focus on impact on **young students**. Content should be **contextual, sensitive, and constructive**, not alarming.

(c) Balanced and ethical course of action:

1. **Content revision, not suppression:**
 - Modify chapter to present **facts with context and solutions** i.e., not just pendency but also propose reforms.
 - Avoid generalized statements like "corruption in judiciary".
2. **Institutional dialogue:** Establish consultation between **NCERT, judiciary, academic experts** and ensure **checks without censorship**.
3. **Age-appropriate pedagogy:** Simplify issues and focus on **civic awareness** rather than criticism and highlight **judicial reforms and success stories**.
4. **Proportional response:** Replace punitive ban with **guidelines or peer review mechanisms** and ensure fairness and preserve academic freedom.
5. **Promote constitutional literacy:** Teach both challenges such as pendency, delays as well as strengths such as independence, PIL, and rights protection.

Conclusion:

A balanced approach must uphold **truth, institutional respect, and constitutional values simultaneously**. Ethical governance lies not in silencing critique, but in **constructively integrating accountability with public trust**, ensuring that education builds **informed citizens, not institutional distrust**.

"In a democracy, institutions must be strong enough to accept scrutiny, and education must be responsible enough to present it constructively."