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Polity & Governance

1. **Examine the constitutional powers of the Election Commission of India in preparing and revising electoral rolls. How should these powers be balanced with due process and protection of voting rights?**

Introduction:

Electoral rolls are the foundation of free and fair elections. The Election Commission of India has the constitutional responsibility to ensure that voter lists are accurate, inclusive and free from ineligible entries.

Constitutional and Legal Powers:

- **Article 324:** Gives the Election Commission superintendence, direction and control over elections.
- **Article 326:** Provides for adult suffrage, subject to legal qualifications such as citizenship, age and absence of disqualification.
- **Representation of the People Act, 1950:** Provides the statutory framework for preparation, revision, correction, inclusion and deletion of names from electoral rolls.
- The Election Commission can conduct ordinary revision as well as intensive revision to maintain the purity of electoral rolls.
- Citizenship is a condition for voter enrolment, so the Commission may examine citizenship-related questions for electoral purposes.

Need for Electoral Roll Revision:

- Removes names of dead persons, duplicate voters and shifted residents.
- Adds newly eligible voters and corrects errors.
- Prevents manipulation of electoral rolls.
- Strengthens the legitimacy of elections and democratic representation.

Concerns:

- Genuine voters may be wrongly deleted due to lack of documents or administrative errors.
- Poor, migrants, women, elderly and marginalised groups are more vulnerable to exclusion.
- The Election Commission cannot finally determine citizenship under the Citizenship Act, 1955.
- Large-scale revision may create fear, confusion and litigation if transparency is weak.

Balancing Power with Due Process:

- No deletion should occur without proper notice and opportunity of hearing.
- Clear guidelines on documents, deadlines and appeal mechanisms must be issued.
- Grievance redressal should be local, simple and time-bound.
- Cases of doubtful citizenship must be referred to competent authorities under the Citizenship Act.
- Technology should assist verification, but human scrutiny must prevent mechanical exclusion.

Conclusion:

The Election Commission's power to revise electoral rolls is essential for electoral purity. However, democracy requires not only clean voter lists but also protection of every eligible citizen's voting right through fairness, transparency and due process.

2. **Child online safety has emerged as a major governance challenge in the digital age. Critically analyze the debate between protecting children from online harms and preserving their rights to privacy, expression, and access to information.** (10 Marks)

Introduction:

The rapid expansion of social media has exposed children to addiction, exploitation and misinformation, prompting governments to consider age-based bans. However, such restrictions raise concerns over privacy, expression and equitable access, demanding a balanced regulatory approach.

Case for Stronger Regulation:

- Children face **addictive design**, **cyberbullying**, **sexual exploitation** and algorithm-driven anxiety.
- Jonathan Haidt's "The Anxious Generation" links social media to adolescent mental health decline.
- **Australia** legally enforced a minimum age of 16 for major platforms; **UK** is considering stricter measures under the **Online Safety Act, 2023**.
- Digital platforms are now treated like **tobacco or gambling** where age-based restrictions are considered legitimate.

Challenges and Concerns:

- Blanket bans may push children to **unregulated platforms**, increasing risk rather than reducing it.
- **Age verification** requires digital IDs or facial checks, raising serious **privacy concerns**.
- Restrictions may violate children's **freedom of expression** and right to access information.
- The **digital divide** makes bans inequitable for lower-income children with less parental supervision.
- Children may bypass restrictions via **VPNs or false accounts**.

India's Position:

- **DPDP Act, 2023** mandates verifiable parental consent for under-18s on digital platforms.
- **IT Rules, 2021** impose child safety obligations on digital intermediaries.
- States like **Karnataka and Andhra Pradesh** have discussed age-based restrictions.

Way Forward:

- Enforce **algorithmic accountability** by mandating platform redesign over blanket bans.
- Strengthen **digital literacy** as a core component of school curricula.
- Build **privacy-preserving age verification** systems that do not compromise personal data.
- Establish an **Ofcom-style independent regulator** focused on children's digital rights in India.

Conclusion:

Child online safety requires moving beyond bans toward a rights-based and platform-accountable framework. Protecting childhood must not come at the cost of privacy, expression or equitable access. India's DPDP Act provides a strong foundation and effective implementation alongside platform accountability will determine its success.

3. The First Constitutional Amendment, 1951 sought to reconcile Fundamental Rights with the State's social and economic reform agenda. Discuss. (10 Marks)

Introduction:

The First Constitutional Amendment, 1951 was enacted when early court judgments protected Fundamental Rights in a manner that constrained the State's reformist agenda. It attempted to balance individual liberties with the need for social justice, land reforms and public order.

Why the Amendment Was Considered Necessary?

- After the Constitution came into force, courts strongly protected Fundamental Rights such as equality, free speech and property.
- However, several government policies on reservations, press regulation and land reforms were challenged and struck down.
- The State felt that judicial interpretation was limiting its ability to implement socio-economic reforms.

How It Reconciled Rights and Reform:

1. Freedom of Speech and Public Order:

- Article 19(2) was amended to add grounds such as **public order, friendly relations with foreign states and incitement to an offence.**
- This enabled the State to impose reasonable restrictions on free speech.

2. Affirmative Action:

- In the Champakam Dorairajan case, caste/community-based reservation in educational institutions was struck down.
- The amendment inserted **Article 15(4)**, allowing special provisions for socially and educationally backward classes, SCs and STs.

3. Land Reforms and Property Rights:

- Zamindari abolition laws were challenged for violating equality and property rights.
- The amendment inserted **Articles 31A and 31B** and created the **Ninth Schedule** to protect land reform laws from judicial invalidation.

Critical Evaluation:

- The amendment enabled social justice, agrarian reform and welfare-oriented governance.
- However, it also expanded State power and began a long debate on limits to free speech and judicial review.
- Later, the basic structure doctrine ensured that constitutional amendments could not destroy core constitutional values.

Conclusion:

Thus, the First Constitutional Amendment was not merely a legal change but a political negotiation between liberty and transformation. It strengthened the State's reform capacity, while also raising enduring questions about the balance between Fundamental Rights, Parliament and judicial review.

4. Increasing the sanctioned strength of the Supreme Court is necessary but not sufficient to address judicial pendency. Discuss. (10 Marks)

Introduction:

Judicial pendency in the Supreme Court affects access to justice, rule of law and public confidence in the judiciary. Increasing the sanctioned strength of judges is necessary to handle the rising caseload, but it is not a complete solution because pendency is also caused by procedural and institutional bottlenecks.

Why increasing judge strength is necessary?

- The Supreme Court performs constitutional, appellate and advisory functions.
- More judges can enable more benches and faster disposal of pending cases.
- It can help in regular constitution benches for important constitutional questions.
- It reduces pressure on existing judges and improves hearing capacity.

Why it is not sufficient?

- Vacancies must be filled in time; otherwise, higher sanctioned strength remains ineffective.
- A large number of Special Leave Petitions under Article 136 convert the Court into a routine appellate forum.
- Frequent adjournments, lengthy arguments and delayed listing slow down disposal.
- Pendency also depends on registry efficiency, courtroom infrastructure and research support.
- Government being a major litigant adds avoidable appeals and delays.
- Weaknesses in High Courts and subordinate courts ultimately increase pressure on the Supreme Court.

Way Forward:

- Timely appointments and vacancy reduction.
- Strict case management and adjournment control.
- Better filtering of SLPs.
- Strengthening lower judiciary and digital courts.
- Reducing unnecessary government litigation.

Conclusion:

Thus, increasing the sanctioned strength of the Supreme Court is an important immediate reform, but judicial pendency requires a comprehensive approach involving procedural discipline, institutional capacity and litigation reforms.

Economy

5. How does the repo rate influence inflation, investment, and economic growth in India? Explain with reference to recent RBI policy decisions. (10 Marks)

Introduction:

The repo rate is the rate at which the RBI lends short-term funds to commercial banks. It is the key monetary policy tool used to influence liquidity, credit cost, inflation and growth. Recently, the RBI kept the repo rate unchanged at 5.25% with a **neutral stance**, reflecting caution amid inflation and growth risks.

Need and Significance:

- **Inflation Control:** A higher repo rate makes borrowing costlier, reduces excess demand and helps control demand-pull inflation.
- **Investment Channel:** A lower repo rate reduces loan rates, encouraging business borrowing, housing demand and private investment.
- **Growth Support:** Easier credit can raise consumption and capital formation, supporting GDP growth and employment.
- **Savings and Currency:** Higher rates may support savings and attract capital flows, helping external stability.
- **Recent RBI Approach:** The unchanged repo rate shows RBI's attempt to balance benign inflation with risks from crude oil, rupee depreciation and global uncertainty.

Challenges:

- **Transmission Lag:** Repo rate changes do not immediately affect bank lending rates.
- **Supply-side Inflation:** Food and fuel inflation cannot be fully controlled by interest rates.
- **Growth Trade-off:** Very high rates may discourage investment and weaken demand.
- **Uneven Impact:** MSMEs and low-income borrowers are more sensitive to interest rate changes.

Way Forward:

- RBI should continue data-based monetary policy while coordinating with fiscal measures on food, fuel and supply chains.
- Credit support for MSMEs, infrastructure and green sectors should continue without weakening inflation control.

Conclusion:

Repo rate policy acts as a bridge between price stability and growth. India needs a calibrated monetary stance that controls inflation while sustaining investment-led economic expansion.

6. Technology investment, not merely acreage expansion, is central to improving India's cotton productivity. Discuss. (10 Marks)

Introduction:

India has the world's largest cotton acreage, yet its cotton productivity remains lower than major producers such as China, Brazil and Australia. This shows that merely expanding area under cotton cannot ensure higher output unless supported by technology, scientific farming and institutional investment.

Why acreage expansion is insufficient?

- India already has a very large area under cotton cultivation, but productivity per hectare remains modest.
- Expansion into rainfed, low-input and marginal lands may increase vulnerability to drought, pest attacks and income instability.
- Price controls and procurement distortions can reduce incentives for farmers and private players to invest in productivity-enhancing innovation.

Role of technology investment:

- **Seed technology:** better hybrids, climate-resilient varieties and next-generation biotechnology are needed, especially as pink bollworm has evolved resistance against earlier Bt cotton benefits.
- **Pest management:** Integrated pest management, pheromone traps, biological control and digital pest surveillance can reduce crop losses.
- **Water efficiency:** Drip irrigation, micro-irrigation and moisture-conservation techniques are crucial because much of India's cotton is rainfed.
- **Mechanisation:** Mechanised sowing, picking and precision farming can reduce labour costs and improve quality.
- **Research and extension:** Stronger public research, farmer training and data-based advisories can bridge the gap between laboratory innovation and field application.

Way Forward:

India's recently introduced Cotton Mission should focus not only on increasing production, but also on productivity, quality, sustainability and farmer income. Public-private partnership, stable policy signals and investment in R&D are essential.

Conclusion:

India's cotton challenge is not primarily a land shortage problem, but a productivity problem. Therefore, future gains must come from technology, scientific farming and better institutions rather than simple acreage expansion.

7. Examine the causes behind the recent decline in India's net FDI despite strong gross FDI inflows. What are its implications for the economy? (10 marks)

Introduction:

Foreign Direct Investment (FDI) refers to long-term investment by foreign entities in productive assets of a country. While India has witnessed robust **gross FDI inflows**, its **net FDI** has declined recently due to rising repatriation and outward investments, reflecting changing investment dynamics.

Positive dimensions:

- Strong gross inflows show continued foreign interest in India's market, digital economy, manufacturing and services.
- Government measures such as PLI schemes, liberalised FDI norms, make in India and Gati Shakti continue to support investor confidence.
- Higher outward FDI also reflects Indian firms becoming global investors.

Challenges:

- Increased repatriation and disinvestment by foreign investors reduced net inflows.
- Private equity and venture capital exits through IPOs and secondary sales increased capital outflow.
- Global uncertainty, higher interest rates, geopolitical risks and valuation concerns affected long-term commitments.
- Indian companies' overseas investments further widened the gap between gross and net FDI.

Impact:

- Lower net FDI reduces stable external financing for the current account.
- It may increase dependence on volatile FPI flows.
- Pressure on rupee and forex reserves may rise during external shocks.
- Employment, technology transfer and manufacturing expansion may be affected if greenfield FDI weakens.

Way Forward:

- Improve contract enforcement, tax certainty and regulatory predictability.
- Encourage greenfield FDI in semiconductors, EVs, renewables and defence.
- Deepen ease of doing business at the State level.
- Convert short-term financial inflows into long-term productive investment.

Conclusion:

India's FDI story remains strong, but the fall in net FDI signals rising investor exits and changing capital behaviour. Policy must focus not only on attracting inflows but also on retaining long-term, job-creating and technology-rich investment.

International Relations

- 8. The selective application of international law by powerful states has weakened the credibility of the rules-based international order. Examine.** (10 Marks)

Introduction:

International law is meant to ensure sovereign equality, peaceful dispute settlement, human rights protection and restraint in the use of force. However, selective application by powerful states has weakened faith in the fairness and neutrality of the rules-based international order.

How selective application weakens credibility?

- **Erodes sovereign equality:** Powerful states often violate sovereignty or support interventions while expecting strict compliance from weaker states.
- **Weakens the UN system:** The veto power of permanent members in the UNSC often prevents action against themselves or their allies.
- **Creates double standards:** Similar violations of humanitarian law or human rights are condemned in some cases but ignored in others.

- **Reduces trust of the Global South:** Developing countries see international law as being used selectively to discipline weaker states while protecting powerful interests.
- **Encourages rule-breaking:** When major powers face no consequences, other states also feel less bound by international norms.

However, international law still remains important:

- Institutions like the ICJ, ICC, WTO and UNCLOS tribunals continue to influence state behaviour.
- Even powerful states justify their actions in legal terms, showing that international law still carries legitimacy.
- International law provides weaker states a platform to raise disputes and seek global support.

Way Forward:

- Reform the UNSC to make it more representative and less paralysed by veto politics.
- Apply humanitarian law and human rights standards uniformly.
- Strengthen international courts and dispute settlement mechanisms.
- Give greater voice to the Global South in global rule-making.

Conclusion:

Selective use of international law has weakened the credibility of the rules-based order, but it has not made international law irrelevant. The need is to democratise global institutions and ensure that rules apply equally to all states, irrespective of power.

9. Free Trade Agreements can expand market access, but may also widen trade deficits and weaken domestic manufacturing. Discuss in the context of India's FTA experience. (10 Marks)

Introduction:

Free Trade Agreements reduce tariff and non-tariff barriers to promote trade, investment and market access. India's experience shows that FTAs create opportunities, but their gains depend on domestic competitiveness, careful negotiation and effective safeguards.

Market Access and Economic Opportunities:

- FTAs have helped India deepen trade with partners such as ASEAN, Japan, South Korea, UAE, Australia and EFTA countries.
- They can expand exports in sectors such as pharmaceuticals, textiles, engineering goods, IT services and professional mobility.
- Recent agreements, including the India-UAE CEPA and India-Oman CEPA, reflect India's attempt to use FTAs for exports, investment and strategic partnerships.

Concerns of Trade Deficits:

- India's imports have often grown faster than exports after some FTAs, especially with ASEAN, Japan and South Korea.
- Lower tariffs can increase imports of electronics, chemicals, machinery and intermediate goods.
- This may widen trade deficits if domestic firms fail to gain equivalent access abroad.

Impact on Domestic Manufacturing:

- Cheap imports may hurt MSMEs and labour-intensive industries.
- Inverted duty structures and weak rules of origin may allow third-country goods to enter through FTA partners.
- However, competitive FTAs can also support Make in India by integrating Indian firms into global value chains.

Way Forward:

- India should negotiate stronger rules of origin, safeguard clauses and review mechanisms.
- Domestic manufacturing must be supported through logistics reform, skill development and technology upgradation.
- FTAs should prioritise services, digital trade and sectors where India has export strength.

Conclusion:

FTAs are neither automatically beneficial nor harmful. A balanced FTA strategy can expand market access while protecting vulnerable sectors. India must combine external trade liberalisation with internal industrial competitiveness.

10. The rise of transactional diplomacy and protectionism in the West has made strategic autonomy more relevant for India. Examine. (10 Marks)

Introduction:

The contemporary international order is witnessing the rise of transactional diplomacy, where national interests increasingly override alliance commitments, alongside growing protectionism in trade, technology, and supply chains.

Why Strategic Autonomy Has Become More Relevant?**1. Rise of Transactional Diplomacy:**

- Major powers increasingly prioritize immediate national gains over long-term partnerships.
- Examples include shifting U.S. positions on tariffs, sanctions, and security commitments.
- India must avoid excessive dependence on any single power bloc.

2. Growing Protectionism:

- Trade barriers, tariffs, and localization requirements affect global commerce.
- Measures such as the EU's Carbon Border Adjustment Mechanism (CBAM) and industrial subsidies create challenges for Indian exports.
- Strategic autonomy enables India to diversify markets and economic partnerships.

3. Technology and Supply Chain Vulnerabilities:

- Export controls on semiconductors, AI, and critical technologies reflect geopolitical competition.
- India requires access to technology from multiple sources while preserving technological sovereignty.

4. Geopolitical Uncertainty:

- Conflicts such as the Russia-Ukraine war and tensions in the Indo-Pacific demonstrate the risks of bloc politics.
- India's balanced engagement with the U.S., Russia, Europe, West Asia, and the Global South enhances diplomatic flexibility.

5. Energy and Economic Security:

- Strategic autonomy allows India to pursue diversified energy sources and maintain independent decisions on oil imports and investments.
- It protects India's developmental priorities from external pressure.

Significance for India:

- Preserves policy independence in foreign and economic affairs.
- Strengthens bargaining power in international negotiations.
- Facilitates multi-alignment through platforms such as Quad, BRICS, SCO, G20, and I2U2.
- Enhances resilience against geopolitical and economic shocks.

Conclusion:

Strategic autonomy today is not a policy of isolation or non-alignment but one of **multi-alignment and issue-based partnerships**. In an era marked by transactional diplomacy and protectionist tendencies, it remains the most effective framework for India to pursue its interests, manage risks, and advance its aspiration of becoming a leading global power.

11. Indian seafarers are increasingly exposed to legal, security and humanitarian risks arising from sanctioned vessels and geopolitical conflicts. Discuss the measures required to protect their rights and welfare.

(10 Marks)

Introduction:

Indian seafarers are the human backbone of global maritime trade, yet they often bear the consequences of decisions taken by shipowners, flag States and sanctioning powers. Detention of crews, abandonment at foreign ports and attacks in conflict zones show that maritime employment has become a matter of labour protection, national security and humanitarian diplomacy.

Risks Faced by Indian Seafarers:

- **Legal risks:** Crew members may be detained or investigated when vessels, owners or cargoes are linked to sanctions, even when they lack knowledge of such violations.
- **Security threats:** Wars, piracy, drone attacks and tensions in major sea routes expose sailors to injury, hostage-taking and death.
- **Abandonment:** Financially distressed or sanctioned shipowners may stop paying wages, providing food or arranging repatriation.
- **Weak contracts:** Recruitment through unregulated agents may leave workers without adequate insurance, legal assistance or compensation.
- **Jurisdictional complexity:** Differences among flag-State, port-State and nationality-based laws delay rescue and dispute resolution.
- **Psychological stress:** Prolonged detention, family separation and uncertainty affect mental health.

Measures Required:

- Create a **centralised vessel-risk and sanctions database** accessible to seafarers and recruitment agencies before employment.
- Mandate strict due diligence by the **Directorate General of Shipping**, shipping companies and registered recruitment agents.

- Prohibit deployment to conflict zones without informed consent, enhanced insurance and risk allowance.
- Establish a dedicated **maritime legal-aid and emergency-response cell** in Indian missions abroad.
- Ensure rapid evacuation, repatriation, unpaid-wage recovery and compensation through an emergency welfare fund.
- Enforce the **Maritime Labour Convention** standards relating to contracts, insurance, abandonment and working conditions.
- Strengthen bilateral agreements and cooperation with the IMO, ILO, flag States and port States.
- Provide pre-departure training on sanctions, cargo documentation, conflict risks and emergency communication.
- Extend counselling, family assistance and rehabilitation to affected seafarers.

Conclusion:

Protection of seafarers cannot depend on post-crisis diplomatic intervention alone. India needs a preventive framework combining regulatory vigilance, informed consent, legal assistance and international cooperation. Safeguarding seafarers is both a labour-rights obligation and a strategic maritime responsibility.

12. Examine how the India–New Zealand Free Trade Agreement can benefit India’s labour-intensive exports while ensuring protection of sensitive domestic sectors. (10 Marks)

Introduction

The India–New Zealand Free Trade Agreement seeks to combine **export-led employment generation with calibrated domestic protection**. By opening New Zealand’s market to Indian goods while shielding vulnerable farm sectors, it reflects India’s emerging strategy of pursuing trade liberalisation without compromising livelihoods and food security.

Benefits for Labour-Intensive Exports:

- **Duty-free access:** New Zealand has offered zero-duty access to all Indian exports, improving their price competitiveness against products from countries already enjoying preferential access.
- **Employment generation:** Textiles, garments, leather, footwear, gems and jewellery, handicrafts, marine products and processed foods can expand, benefiting workers, artisans and women-led enterprises.
- **MSME integration:** Simplified customs procedures, transparent standards and trade facilitation can help Micro, Small and Medium Enterprises enter New Zealand’s market.
- **Services gains:** Opportunities in Information Technology, professional services, healthcare, education and traditional medicine can complement merchandise trade.
- **Investment and value chains:** New Zealand’s investment commitment and cooperation in agriculture technology, food processing and logistics can improve productivity and connect Indian firms with global value chains.

Protection of Sensitive Domestic Sectors:

- India has protected its major sensitivities in **dairy and agriculture**, where unrestricted imports could adversely affect millions of small farmers.
- Sensitive products may be excluded from tariff concessions or subjected to gradual tariff reduction, tariff-rate quotas and safeguards.

- **Rules of Origin** are necessary to prevent third-country products from being routed through New Zealand merely to obtain preferential tariffs.
- Strong sanitary and phytosanitary standards can prevent unsafe imports while remaining consistent with trade rules.
- Bilateral safeguard measures should permit temporary restrictions when sudden import surges seriously injure domestic producers.
- Adjustment assistance, technology support and credit must help vulnerable farmers and MSMEs improve competitiveness.

Conclusion:

The agreement can convert trade access into employment by promoting textiles, leather, food processing and other labour-intensive sectors. However, its success depends on effective Rules of Origin, safeguards and continued protection for vulnerable agriculture and dairy. Thus, carefully sequenced liberalisation can make the FTA both growth-oriented and socially sustainable.

Environment, Ecology and Disaster Management

13. A rapid shift towards electric vehicles requires more than purchase incentives and regulatory mandates. Examine the infrastructural, fiscal and governance challenges involved in the implementation of Delhi's EV Policy 2.0. (15 Marks)

Introduction:

Delhi's EV Policy 2.0 seeks to transform urban mobility from a fossil-fuel-dependent system into a low-emission ecosystem through incentives, scrappage benefits and phased electrification mandates. However, success depends on robust charging infrastructure, power supply, financing, and effective administrative capacity.

Infrastructural Challenges:

- **Uneven charging network:** Charging facilities remain concentrated in selected commercial areas, while peripheral colonies, informal settlements and rented housing remain underserved.
- **Limited parking:** Many residents lack dedicated parking spaces for installing private chargers.
- **Grid stress:** Simultaneous fast charging may overload local transformers and increase peak electricity demand.
- **Reliability concerns:** non-functional chargers, long waiting periods, incompatible payment systems and poor real-time information discourage users.
- **Commercial mobility:** Autos, delivery vehicles and taxis require rapid-charging or battery-swapping facilities to avoid income loss.
- **Battery ecosystem:** Safe recycling, collection and disposal systems are essential to prevent replacing air pollution with hazardous waste.

Fiscal Challenges:

- Purchase subsidies, road-tax exemptions, scrappage benefits and charging infrastructure impose a substantial recurring burden.
- Delayed subsidy payments can weaken consumer confidence and create cash-flow problems for dealers.
- Incentives may disproportionately benefit higher-income private-vehicle owners unless prioritised towards public transport and livelihood vehicles.
- Falling fuel-tax and registration revenues may constrain Delhi's capacity to finance transport and pollution-control programmes.

Governance Challenges:

- Implementation requires coordination among the Transport Department, power utilities, municipal corporations, DISCOMs and land-owning agencies.
- Complex approvals for land, electricity connections and chargers can delay projects.
- Weak monitoring may produce fraudulent claims, substandard batteries and non-operational charging stations.
- Abrupt mandates may affect low-income owners, small dealers, mechanics and gig workers.
- Delhi-NCR traffic requires coordination with neighbouring states to avoid fragmented standards.

Way Forward:

- Expand reliable, interoperable and geographically equitable charging infrastructure.
- Link subsidies to vehicle use, income and scrappage rather than provide universal incentives.
- Promote electric buses and shared mobility over excessive private ownership.
- Establish charger-uptime standards, battery recycling systems and transparent digital monitoring.
- Ensure phased implementation, stakeholder consultation and livelihood-transition support.

Conclusion:

Delhi's EV transition must be treated as an urban-system transformation rather than a vehicle-substitution programme. Fiscal prudence, dependable infrastructure and coordinated governance are indispensable for an equitable transition. Only then can electric mobility deliver cleaner air without creating new forms of exclusion.

14. Evaluate the need for a National Environmental Survey to strengthen environmental governance in India.

(10 Marks)

Introduction:

India's environmental governance faces challenges of fragmented data, weak monitoring, poor enforcement and rising climate risks. A **National Environmental Survey** can provide periodic, reliable and comparable data to make environmental decision-making more evidence-based.

Need and Significance:

- **Evidence-based policy:** It can generate data on air, water, soil, forests, biodiversity, waste and climate vulnerability, helping governments design targeted interventions.
- **Bridging data gaps:** Present environmental data is scattered across ministries, pollution control boards and State agencies. A national survey can create a unified environmental database.
- **Strengthening federal governance:** It can assess State-wise and district-wise environmental performance, encouraging cooperative and competitive federalism.
- **Better enforcement:** Survey findings can help pollution control boards identify hotspots, monitor compliance and improve post-clearance environmental monitoring.
- **Climate resilience:** It can map vulnerable regions facing floods, heatwaves, droughts and coastal erosion, supporting local adaptation plans.

Challenges:

- Institutional coordination between Union, States and local bodies may be difficult.
- Data quality, standardisation and regular updating will require scientific capacity.
- State pollution control boards may lack funds, staff and technology.
- Environmental rankings may become politically sensitive.

Way Forward:

- Use satellite data, ground monitoring and citizen inputs.
- Ensure independent expert supervision and public access to data.
- Link findings with planning, budgeting and enforcement.

Conclusion:

A National Environmental Survey can strengthen India's environmental governance by improving data, accountability and climate preparedness. However, its success depends on scientific credibility, transparency and strong institutional follow-up.

15. The rapid expansion of AI data centres has generated a new debate between technological growth and environmental sustainability. Discuss with suitable examples. (10 Marks)

Introduction:

AI data centres power artificial intelligence, cloud services and digital economies. Global electricity consumption by data centres is projected to **double by 2030**, making their expansion a critical conflict between technological progress and ecological sustainability.

Significance of AI Data Centres:

- Support **AI models, e-governance, fintech, DPI** and national data security.
- Strengthen **data sovereignty** by reducing dependence on foreign servers.
- Growing clusters in **Mumbai, Chennai, Hyderabad, Noida and GIFT City** reflect India's expanding ambition.

Technological Growth and Economic Importance:

- Hyperscale centres are essential for **large language models, cloud computing and DPI**.
- Global firms - **Google, Microsoft, Amazon, Meta** - are expanding AI infrastructure, attracting large-scale investment.
- Domestic data centres strengthen **data sovereignty and national security**.

Environmental Sustainability Concerns:

- Require **uninterrupted power and enormous water volumes** - straining deficit grids and water networks.
- Forcible clearing of **farmland, coastal zones and communities** raises ecological and social justice concerns.
- Hyperscale centres employ only a **few dozen technicians** - making job creation claims misleading.
- **EIA was waived** for the Google-Adani project in Visakhapatnam - a 480-acre facility in a vulnerable coastal zone.
- **DCW** estimates US opposition blocked **\$152 billion** in projects in 2025; EU has shifted toward smaller, sustainable regional centres.

Way Forward:

- Reinstate mandatory **EIA**; replace blanket concessions with **conditional green incentive frameworks**.
- Adopt the **EU model** which is smaller, sustainable centres focused on heat recovery and green energy.

Conclusion:

AI data centres are essential for digital growth, but unchecked expansion deepens ecological stress. India needs a regulatory architecture conditioning digital investment on **environmental compliance and community rights** – balancing innovation with sustainability.

16. India's renewable-energy transition is increasingly constrained not by generation capacity, but by limitations in transmission and grid infrastructure. Examine. (10 Marks)

Introduction:

India has rapidly expanded renewable-energy capacity, with solar and wind power becoming increasingly cost-competitive. Yet, the success of the transition now depends on whether the grid can transmit, absorb and balance this electricity efficiently.

Transmission Bottlenecks:

- Renewable potential is concentrated in regions such as Rajasthan, Gujarat, Tamil Nadu and Karnataka, while demand centres are spread across the country.
- Transmission lines, substations and inter-state corridors have not expanded at the same pace as renewable generation.
- Delays in right-of-way, land acquisition and clearances slow transmission projects.

Grid Integration Challenges:

- Solar and wind power are variable and intermittent.
- Solar generation is high during the day, while peak demand often occurs in the evening.
- Without adequate storage and flexible balancing systems, renewable power may face curtailment.

Underuse of Existing Infrastructure:

- Existing lines can carry more power through modernisation, advanced conductors, dynamic line rating and better grid management.
- Upgrading coal corridors and underutilised transmission assets can support renewable evacuation.

Distribution-Level Constraints:

- Weak DISCOM finances, outdated distribution networks and high losses reduce the ability to absorb clean power.
- Poor demand forecasting and limited real-time market integration further affect grid efficiency.

Way Forward:

- Build transmission corridors in advance of renewable projects.
- Expand battery storage and pumped-storage systems.
- Modernise grids through smart meters, forecasting and grid-enhancing technologies.
- Strengthen DISCOMs and improve inter-state power markets.

Conclusion:

India's renewable transition is no longer limited by the availability of clean-energy capacity alone. A reliable, flexible and modern grid is essential to convert renewable potential into affordable, continuous and secure electricity.

17. Why is the declaration of Ecologically Sensitive Areas essential for the protection of the Western Ghats? Examine the ecological consequences of mining, quarrying, polluting industries and unplanned construction in the region. (10 Marks, 150 Words)

Introduction:

The Western Ghats are a global biodiversity hotspot, a major monsoon barrier and the source of several peninsular rivers. Declaring vulnerable areas as **Ecologically Sensitive Areas (ESAs)** is therefore necessary to regulate environmentally destructive activities while permitting sustainable livelihoods.

Importance of ESA Declaration:

- **Biodiversity conservation:** It protects endemic and threatened flora and fauna from habitat destruction and fragmentation.
- **Water security:** Forest protection safeguards river catchments, groundwater recharge and perennial streams.
- **Disaster-risk reduction:** Regulation of slope-cutting and deforestation reduces landslides, floods and soil erosion.
- **Climate regulation:** Forests act as carbon sinks and help regulate rainfall and local temperatures.
- **Planned development:** ESA status prevents indiscriminate land-use changes without automatically prohibiting agriculture, plantations or existing settlements.

Ecological Consequences of Harmful Activities:

- **Mining and quarrying** remove vegetation, destabilise slopes, generate dust and contaminate water sources.
- **Polluting industries** release toxic effluents and emissions, degrading rivers, soil and public health.
- **Unplanned construction** fragments wildlife corridors, blocks natural drainage and increases surface runoff.
- Such cumulative pressures cause biodiversity loss, human–wildlife conflict, water scarcity and greater vulnerability to extreme rainfall events.

Conclusion:

A scientifically demarcated and locally consultative ESA framework is essential to preserve the ecological security of the Western Ghats. Conservation must be combined with livelihood support, compensation and sustainable development alternatives.

18. Recurring fire tragedies in Indian cities are less a result of inadequate laws and more a consequence of weak enforcement, fragmented governance and unplanned urbanisation.” Discuss. (15 Marks)

Introduction:

India’s urban fire disasters are rarely sudden accidents; they are usually the final outcome of a long chain of ignored violations. From hospitals and coaching centres to factories, hotels and residential buildings, repeated tragedies reveal that the central problem is not the absence of safety regulations, but the failure to translate them into safe urban spaces.

India Has a Substantial Legal Framework:

- The **National Building Code of India, 2016** prescribes fire exits, alarms, extinguishers, access routes and evacuation standards.
- State fire-service laws, municipal building bye-laws, factory regulations and disaster-management guidelines provide additional safeguards.
- Fire-safety clearances and **No-Objection Certificates** are generally required for high-rise and commercial buildings.
- Therefore, the regulatory architecture is broadly available, although periodic updating and harmonisation remain necessary.

Weak Enforcement: The Principal Failure:

- Buildings often operate without valid fire clearances or continue functioning after certificates expire.
- Inspections are irregular, understaffed and sometimes reduced to paperwork.
- Emergency exits are frequently blocked, staircases narrowed and basements illegally converted into commercial or storage spaces.
- Illegal electrical wiring, combustible interiors and overcrowding are tolerated.
- Penalties remain weak, allowing violators to treat non-compliance as a manageable business cost.

Fragmented Urban Governance:

- Fire safety involves municipal corporations, fire departments, development authorities, police, electricity agencies and pollution-control bodies.
- Overlapping jurisdiction weakens accountability and creates regulatory gaps.
- Poor coordination delays rescue operations and prevents integrated risk assessment.
- Political patronage, corruption and regularisation of illegal structures further undermine enforcement.

Role of Unplanned Urbanisation:

- Congested settlements and narrow roads prevent fire engines from reaching accident sites.
- Mixed land use places hazardous workshops, warehouses and commercial establishments inside residential areas.
- Rapid vertical construction has often outpaced firefighting capacity.
- Informal settlements lack hydrants, safe electrical systems and emergency-access routes.

Way Forward:

- Establish unified digital fire-clearance and inspection systems with public disclosure.
- Conduct independent, risk-based audits and impose strict liability on owners and officials.
- Strengthen municipal fire services, equipment, staffing and training.
- Integrate fire safety with master planning, building permission and occupancy certification.
- Promote community drills, evacuation plans and citizen reporting.

Conclusion:

Urban fire safety is ultimately a test of governance rather than legislation alone. Laws become meaningful only when violations invite certain penalties and institutions are clearly accountable. India must shift from post-disaster compensation to prevention-oriented, professionally managed and resilient urban governance.

Science and Technology

19. Rapid Advances in Genome Sequencing, AI and Biotechnology Require New Regulatory and Ethical Frameworks

Introduction:

Synthetic biology represents a major shift from merely studying life to redesigning biological systems for specific purposes. Rapid progress in genome sequencing, artificial intelligence and biotechnology has enabled scientists to modify genes, engineer cells and construct organisms with desired functions. While this creates opportunities in health, agriculture, industry and environment, it also raises serious ethical, ecological and security concerns.

1. Transformative Potential of Synthetic Biology:

- **Healthcare:** It can support advanced vaccines, gene therapies, personalised medicine, engineered immune cells and treatment of genetic disorders.
- **Agriculture:** It can help create climate-resilient crops, pest-resistant varieties and nutritionally improved food crops.
- **Industry:** Engineered microbes can produce biofuels, enzymes, pharmaceuticals, biodegradable materials and sustainable chemicals.
- **Environment:** Synthetic organisms can assist in bioremediation, carbon capture and waste management.
- **Research:** Minimal or synthetic cells can improve understanding of evolution, origin of life and cellular functioning.

2. Need for New Regulation:

- **Biosafety:** Accidental release of engineered organisms may disturb ecosystems, biodiversity and food chains.
- **Biosecurity:** Genetic engineering tools may be misused to create harmful pathogens or biological agents.
- **Regulatory gap:** Existing legal systems often fail to keep pace with fast-moving biotechnology and AI-based biological design.
- **Cross-border risk:** Engineered organisms and biological data can spread beyond national boundaries, requiring international cooperation.
- **Data governance:** Genome databases need safeguards against misuse, privacy violation and discriminatory profiling.

3. Ethical Frameworks Required:

- **Moral boundaries:** Redesigning or creating life raises questions about human intervention in natural processes.
- **Equity:** Benefits of synthetic biology must not remain limited to rich countries or corporations.
- **Consent and privacy:** Human genomic data must be collected and used with informed consent.
- **Accountability:** Scientists, companies and states must be responsible for unintended consequences.

Conclusion:

Synthetic biology can become a powerful tool for human welfare if guided by responsible innovation. India and the world need updated biosafety laws, ethical review systems, genome-data protection, public consultation and international norms. The aim should be to promote innovation while preventing harm to society, nature and future generations.

20. Artificial Intelligence, semiconductors and digital infrastructure are redefining the nature of power in the twenty-first century. Discuss. (15 Marks)

Introduction:

Power in the twenty-first century is no longer determined only by territory, military strength or natural resources. Artificial Intelligence, semiconductors and digital infrastructure have become strategic assets that shape economic competitiveness, military superiority, governance capacity and geopolitical influence.

1. AI as a new instrument of power:

- AI enables faster decision-making, predictive governance, automation and intelligence analysis.
- In defence, AI supports autonomous systems, cyber operations, surveillance, drone swarms and battlefield management.
- Countries with strong AI ecosystems can dominate future industries such as healthcare, education, finance, logistics and manufacturing.

2. Semiconductors as the foundation of technological sovereignty:

- Semiconductors are the “brains” of modern devices, from smartphones and satellites to missiles and data centres.
- Control over chip design, fabrication and supply chains gives nations strategic leverage.
- The US-China chip rivalry shows that semiconductors have become tools of economic statecraft and technology denial.

3. Digital infrastructure as strategic infrastructure:

- Cloud computing, data centres, 5G/6G networks, undersea cables and digital payment systems now form the backbone of economies.
- Dependence on foreign platforms can create vulnerabilities in data security, service continuity and national sovereignty.
- Countries with trusted digital public infrastructure can improve welfare delivery, financial inclusion and citizen-state interaction.

4. New dimensions of global power:

- Data has become a critical resource like oil.
- Cybersecurity, digital standards, platform control and AI regulation are emerging as areas of geopolitical competition.
- Digital colonialism may arise when developing countries depend excessively on foreign hardware, software and platforms.

5. India's challenges and opportunities:

- India has strengths in digital public infrastructure, IT talent, Aadhaar, UPI and a growing semiconductor mission.
- However, dependence on imported chips, advanced GPUs, cloud systems and critical minerals remains a concern.

Conclusion:

AI, semiconductors and digital infrastructure are transforming power from physical control to technological control. For India, the priority is to build digital sovereignty through indigenous innovation, secure supply chains, ethical AI, cyber resilience and strategic partnerships. This will determine its place in the emerging global order.

21. “Global governance of Artificial Intelligence is necessary not only for managing technological risks but also for ensuring equitable access to its benefits.” Discuss, with particular reference to developing countries.

(15 Marks)

Introduction:

Artificial Intelligence can transform healthcare, agriculture, education, governance and economic productivity. However, its rapid growth also creates risks such as algorithmic bias, privacy violations, cyberattacks, autonomous weapons and concentration of technological power. Therefore, AI requires coordinated global governance that combines safety with equitable development.

Need for Global AI Governance:

Managing technological risks:

- **Common safety standards:** International norms can establish minimum requirements for transparency, human oversight, accountability and testing of high-risk AI systems.
- **Control of harmful applications:** Cooperation is required to prevent the misuse of AI in biological weapons, cyber warfare, disinformation and autonomous weapon systems.
- **Cross-border regulation:** AI systems, datasets and digital platforms operate across national boundaries; isolated domestic laws cannot adequately regulate them.
- **Scientific assessment:** An international scientific panel can periodically assess AI capabilities and provide evidence-based guidance to governments.
- **Regulatory coordination:** Common principles can reduce conflicting national regulations while preventing companies from shifting operations to jurisdictions with weak safeguards.

Ensuring equity for developing countries:

- **Bridging the AI divide:** Computing infrastructure, advanced chips, datasets and skilled professionals are concentrated in developed countries and large technology companies.
- **Preventing technological dependence:** Developing countries may otherwise become mere consumers of foreign AI systems, resulting in new forms of digital colonialism.
- **Access to public resources:** Initiatives such as a **Trusted AI Commons** can provide open datasets, testing tools, benchmarks and safety protocols.
- **Representation in rule-making:** Developing countries must participate in framing global standards so that regulations reflect their developmental priorities.
- **Capacity-building:** Technology transfer, concessional finance, digital infrastructure and skill development can enable meaningful participation in the AI economy.

Way Forward:

Global rules should follow the principles of inclusiveness, proportional regulation, data sovereignty, transparency and differentiated capacities. India can represent the interests of the Global South while promoting open and responsible AI ecosystems.

Conclusion:

Global AI governance must not become a mechanism for technologically advanced countries to monopolise innovation. It should simultaneously regulate serious risks, protect national sovereignty and ensure that AI becomes a shared instrument of inclusive global development.

Geography

- 22. Warmer nights are emerging as a serious public health challenge in India. Discuss the causes and consequences of rising night-time temperatures in urban areas.** (10 Marks)

Introduction:

Warmer nights are becoming a major urban health concern in India. Traditionally, cooler nights helped the body recover from daytime heat, but rising night-time temperatures are now making heat exposure continuous and dangerous.

Causes:

1. **Urban Heat Island Effect:** Concrete, asphalt, glass buildings and dense construction absorb heat during the day and release it slowly at night. This keeps cities hotter than nearby rural areas.
2. **Loss of Green Spaces:** Reduction of trees, parks, wetlands and water bodies weakens natural cooling. Less vegetation means less shade and lower evapotranspiration.
3. **Poor Urban Housing:** Many low-income families live in small, congested and poorly ventilated houses. Such homes trap indoor heat, making sleep difficult and unsafe during summer nights. In Chennai, studies found that some households slept in temperatures above 32°C and even 35°C.
4. **Climate Change:** Rising average temperatures have increased the baseline heat level. Future projections indicate that night-time temperatures may rise faster than daytime extremes.
5. **Waste Heat:** Vehicles, industries, generators and air-conditioners release additional heat, further worsening night-time urban temperatures.

Consequences:

1. **Health Problems:** Hot nights prevent the body from cooling down. This increases risks of dehydration, heat stroke, cardiac stress, respiratory illness and kidney-related problems.
2. **Poor Sleep and Productivity Loss:** High night temperatures disturb sleep, causing fatigue and reduced work efficiency, especially among outdoor workers and informal labourers.
3. **Impact on Vulnerable Groups:** Elderly people, children, pregnant women, the sick and low-income households are most affected due to limited access to cooling and healthcare.
4. **Higher Mortality Risk:** Research from Ahmedabad showed mortality rising sharply when night temperatures crossed 28–30°C.

Conclusion:

Warmer nights are turning urban heat into a 24-hour public-health threat. India needs heat-resilient housing, cool roofs, urban greening, better ventilation, local heat monitoring and stronger Heat Action Plans to protect vulnerable populations.

- 23. Why are several European countries struggling to cope with increasingly frequent heatwaves despite their high levels of economic development? Examine the role of urban planning, ageing infrastructure and climate adaptation.** (10 Marks, 150 Words)

Introduction:

Europe's heatwave crisis demonstrates that economic prosperity does not automatically ensure climate resilience. Much of its urban and infrastructural system was designed for a historically mild climate and is therefore poorly equipped for increasingly frequent and intense heatwaves.

Reasons for Europe's Vulnerability:

- **Climate-incompatible urban planning:** Dense construction, extensive concrete surfaces and limited green spaces intensify the **urban heat-island effect**. Many cities lack shaded streets, public fountains and accessible cooling centres.
- **Heat-retaining buildings:** Older buildings were designed to conserve warmth during cold winters. Poor ventilation and limited air-conditioning cause indoor temperatures to remain dangerously high.
- **Ageing infrastructure:** Railway tracks may buckle; roads soften and electricity grids face stress as cooling demand rises. Nuclear and thermal power plants may also reduce generation when rivers become too warm for effective cooling.
- **Demographic vulnerability:** Europe's ageing population is highly susceptible to dehydration, cardiovascular stress and heat-related mortality.
- **Adaptation deficit:** Heat-action plans, early-warning systems, worker-protection norms and emergency health facilities remain uneven across countries.

Way Forward:

Europe must adopt climate-sensitive building codes, cool roofs, urban forests, heat-resilient transport and decentralised renewable-energy systems. Targeted protection for elderly people, outdoor workers and low-income households is equally necessary.

Conclusion:

Thus, Europe's difficulty is not a lack of resources but a mismatch between its inherited infrastructure and emerging climatic realities. Economic capacity must now be translated into anticipatory and inclusive climate adaptation.

Indian Society

- 24. "India's demographic dividend may gradually transform into a demographic burden due to rapid population ageing." Discuss. (10 Marks)**

Introduction:

India is presently enjoying a **demographic dividend**, with a large working-age population contributing to economic growth. However, falling fertility, rising life expectancy and declining birth rates indicate that India is gradually moving towards an ageing society. If not prepared, this dividend may become a demographic burden.

How demographic dividend may become a burden:

- **Rising elderly population:** By 2050, nearly one-fifth of India's population may be above 60 years, increasing dependency on the working-age population.
- **Pressure on healthcare:** Ageing will increase demand for geriatric care, treatment of chronic diseases, mental health support and palliative care.
- **Social security burden:** Many elderly people work in the informal sector and lack pensions, creating pressure on government welfare schemes.
- **Shrinking workforce:** Low fertility may gradually reduce the young labour force, affecting productivity and economic growth.
- **Weakening family support:** Migration, nuclear families and urbanisation are reducing traditional care systems for the elderly.
- **Regional imbalance:** Southern states like Kerala are ageing faster, while northern states still have younger populations, creating uneven policy needs.

Way Forward:

India must invest in **elderly healthcare**, universal social security, pension coverage, age-friendly cities and formal care economy jobs. Skill development, higher female workforce participation and healthy ageing policies are also needed.

Conclusion:

Thus, ageing should not be seen only as a welfare issue, but as a major developmental challenge requiring early planning. With timely reforms, India can manage the transition from a young society to an ageing society with dignity and productivity.

- 25. The demand for a separate Sarna religious code reflects the larger struggle of Adivasi communities for cultural recognition and constitutional dignity. Analyse. (10 Marks)**

Introduction:

The demand for a separate Sarna religious code has emerged as an important issue in the ongoing census debate. Sarna refers to the traditional faith followed by many Adivasi communities, especially in Jharkhand, Chhattisgarh, Odisha and adjoining regions. It reflects a wider concern that tribal belief systems should not be invisibilised under broader religious categories.

Background:

- Scheduled Tribes are recognised under Article 342 of the Constitution and receive protections, reservations and welfare support due to historical disadvantage and socio-economic vulnerability.
- Unlike Scheduled Castes under Article 341, Scheduled Tribe status is not explicitly linked to religion.
- In the case of Scheduled Castes, conversion away from Hinduism traditionally led to loss of SC status because caste disability was legally treated as linked to the Hindu social order. Later, Sikh and Buddhist Dalits were included, while Christian and Muslim converts are still generally excluded.
- Many Adivasi communities follow indigenous belief systems based on nature worship, ancestor worship, sacred groves, clan traditions and community rituals.
- However, census categories often compel them to identify with major religions, leading to concerns of cultural erasure.

Why the Demand Matters?

- **Cultural recognition:** A separate Sarna code would formally acknowledge that Adivasi faiths have independent identity, practices and worldview.
- **Constitutional dignity:** It would strengthen the values of equality, identity and freedom of conscience under Articles 14, 21 and 25.
- **Accurate enumeration:** Separate counting can help in better policy design for tribal welfare, language, education, culture and customary institutions.
- **Protection from assimilation:** The demand reflects anxiety that tribal identities are being absorbed into dominant religious and political categories.
- **Democratic assertion:** It represents Adivasi agency in defining themselves rather than being classified by external frameworks.

However, the issue also requires careful handling, as religion-based enumeration may create political contestation and administrative complexity.

Conclusion:

The Sarna code demand is not merely about census classification. It is a demand for recognition, dignity and self-representation. A sensitive constitutional response must respect India's pluralism while ensuring that Adivasi communities retain their distinct cultural identity.

26. India's urban water crisis is increasingly characterised by the paradox of simultaneous water scarcity and water contamination. Examine the causes of this phenomenon and suggest measures for achieving urban water security.

(15 Marks)

Introduction:

India's urban water crisis is not merely a problem of inadequate water availability, but of poor water governance creating a paradox of "too little usable water and too much polluted water." NITI Aayog warns 21 major cities face groundwater exhaustion, while CAG flags most urban Sewage Treatment Plants (STPs) fail discharge standards.

Causes of Simultaneous Scarcity and Contamination:**1. Inefficient Urban Water Management:**

- High non-revenue water due to leakages, illegal connections and poor metering reduces actual supply.
- Intermittent water supply creates low pressure, allowing sewage and pollutants to enter pipelines.
- Ageing distribution networks contaminate treated water before it reaches households.

2. Overdependence on Distant and Depleting Sources:

- Cities increasingly depend on distant rivers, reservoirs and groundwater.
- Excessive groundwater extraction causes falling water tables, salinity and aquifer stress, particularly in peri-urban zones where arsenic and heavy metal contamination is rising due to industrial discharge.
- Urban lakes, tanks and wetlands have been encroached upon, reducing local water storage.

3. Poor Sewage and Wastewater Treatment:

- STPs are often underused, poorly maintained or unable to meet standards – consistently flagged in CAG audits of ULBs.
- Untreated sewage enters rivers, lakes and groundwater.
- Limited reuse of treated wastewater increases pressure on freshwater sources.

4. Unplanned Urbanisation:

- Rapid construction reduces groundwater recharge through concretisation.
- Informal settlements often lack safe pipelines and sanitation, increasing contamination risks.
- Industrial effluents – heavy metals, dyes, chemical waste – and solid waste disposal degrade peri-urban groundwater quality.

5. Climate Variability and Institutional Gaps:

- Erratic monsoon and longer dry spells reduce recharge and extend scarcity periods.
- Inter-jurisdictional river water disputes create supply uncertainty for dependent cities.
- Fragmented responsibility among ULBs, water boards and pollution agencies weakens accountability.
- Water pricing fails to recover costs, reducing funds for maintenance.

Measures for Urban Water Security:**1. Demand and Supply Management:**

- Reduce leakages through metering, audits and pipeline repair.
- Promote rainwater harvesting, aquifer recharge and wetland protection under water-sensitive urban design principles.
- Discourage water-intensive industries in stressed urban zones through zoning and pricing disincentives.

2. Wastewater Reuse:

- Treat and reuse wastewater for industry, construction, gardening and flushing.
- Ensure STPs meet standards continuously, with third-party audits as mandated under AMRUT 2.0.

3. Pollution Control:

- Monitor sewage discharge, industrial effluents and solid waste; enforce polluter-pays principle through graduated penalties.
- Upgrade drainage and sewerage networks.

4. Governance Reforms:

- Adopt integrated urban water management under Smart Cities Mission and Jal Jeevan Mission (Urban).
- Use smart sensors, GIS mapping, aquifer stress indices and public dashboards for real-time monitoring.
- Introduce progressive water tariffs to incentivise conservation and fund maintenance.
- Strengthen community participation through Water User Associations and last-mile governance committees.

Conclusion:

Urban water security demands shifting from source expansion to a circular, decentralised and accountable governance model. Wastewater reuse, wetland conservation, pollution enforcement and climate-resilient sponge city planning are essential for water-secure Indian cities.

27. Fertility policy in India must move beyond childbirth incentives towards family-supportive social infrastructure. Analyse. (10 Marks)

Introduction:

India's Total Fertility Rate (TFR) has fallen below the replacement level of 2.1, reflecting profound socio-economic changes. While some states have proposed financial incentives to encourage childbirth, global experience suggests that fertility decisions are shaped more by long-term social and economic conditions than by one-time cash benefits.

Limitations of Childbirth Incentives:

- One-time cash transfers or birth-related benefits do not offset the lifelong costs of raising children.
- Rising expenditure on education, healthcare, housing and childcare discourages larger families.
- Evidence from countries such as Japan and South Korea shows that financial incentives alone have had limited success in reversing fertility decline.
- Fertility decline is increasingly linked to lifestyle choices, urbanisation, delayed marriage and changing aspirations.

Need for Family-Supportive Social Infrastructure:**1. Affordable Childcare Facilities:**

- Quality childcare services reduce the burden on working parents, especially women.
- Encourages better work-family balance.

2. Housing and Urban Support:

- Affordable housing and child-friendly urban spaces reduce the economic costs of parenting.
- Improves the feasibility of raising children in cities.

3. Work-Family Reconciliation Policies:

- Paid parental leave, flexible work arrangements and workplace childcare support family formation.
- Reduces career penalties associated with parenthood.

4. Strengthening Education and Healthcare:

- Accessible public education and healthcare lower the financial burden of child-rearing.
- Enhances confidence among couples to have children.

5. Gender Equality Measures:

- Greater sharing of domestic responsibilities and improved female workforce participation can positively influence fertility decisions.
- Reduces the disproportionate caregiving burden on women.

Conclusion:

Fertility decline is not merely a demographic issue but a reflection of broader social transformation. Therefore, sustainable fertility policy should move beyond childbirth incentives and focus on creating a supportive ecosystem through childcare, healthcare, housing, education and gender-sensitive welfare measures that make family formation economically and socially viable.

Ethics

28. A preventable fire accident is not merely an administrative failure but an ethical failure of public institutions.

Discuss with reference to integrity, accountability, duty and the right to life.

(10 Marks)

Introduction:

A preventable fire tragedy is not an accident in the true sense, it is the human cost of ignored warnings, compromised inspections and institutional indifference. When public authorities permit unsafe buildings to function, the failure transcends poor administration and becomes a breach of public trust, constitutional morality and the State's ethical duty to protect life.

Ethical Dimensions of Preventable Fire Accidents:

Ethical Dimensions:

- **Failure of integrity:** Integrity requires consistency between public rules and official conduct. Issuing fire clearances despite violations, overlooking illegal construction or accepting bribes converts regulatory authority into complicity.
- **Erosion of accountability:** Fire safety often involves municipal bodies, development authorities, fire departments and building owners. Diffused responsibility enables blame-shifting, while victims rarely receive timely justice. Ethical governance requires clear responsibility, answerability and proportionate sanctions.
- **Neglect of duty:** Public officials hold a fiduciary duty to prevent foreseeable harm. Irregular inspections, expired safety certificates, non-functional alarms and blocked exits indicate dereliction of duty, not an unavoidable accident.
- **Violation of the right to life:** Article 21 includes the right to live with dignity and reasonable safety. Failure to enforce building and fire norms exposes citizens to preventable risks and violates the State's positive obligation to protect life.
- **Deficit of compassion:** post-tragedy compensation cannot substitute prevention. Ethical administration must value human life above political convenience, commercial interests and bureaucratic routine.

Way Forward:

- Fix individual and institutional responsibility through independent inquiries.
- Digitise inspections and publicly disclose fire-safety compliance.
- Protect whistle-blowers and penalise both negligent officials and building owners.
- Conduct regular audits, evacuation drills and community awareness programmes.

Conclusion:

A preventable fire reveals not only weak capacity but weakened conscience in governance. Public institutions must move from ritual compliance and post-disaster relief to integrity-based prevention. Protecting life is the first ethical test of the State.

Internal Security

- 29. Security operations alone cannot ensure lasting peace in Maoist-affected tribal areas. Analyse the need for a rights-based and governance-oriented approach in post-LWE conflict regions.** (15 Marks)

Introduction:

Maoism in tribal areas is not merely a law-and-order problem; it is rooted in historical deprivation, land alienation, weak governance, and mistrust between the State and Adivasi communities. Hence, while security operations are necessary to neutralise armed violence, lasting peace requires justice, dignity, participation, and accountable governance.

Limits of Security-Centric Approach:

- Security operations can weaken Maoist networks, disrupt extortion, and restore administrative access.
- However, excessive force, arbitrary arrests, displacement, or lack of accountability may deepen alienation.
- Peace cannot be sustained if local communities view the State only through police camps, checkpoints, and combing operations.

Need for Rights-Based Approach:

- **Land and Forest Rights:** Effective implementation of Forest Rights Act, PESA, and safeguards against unjust displacement is essential.
- **Tribal Dignity:** Adivasi communities must be treated as rights-bearing citizens, not merely as security subjects.
- **Justice Delivery:** Fast disposal of false cases, legal aid, compensation for violations, and rehabilitation of surrendered cadres build trust.
- **Cultural Recognition:** Respect for local customs, gram sabhas, traditional institutions, and community control over resources is crucial.

Governance-Oriented Approach:

- **Basic Services:** Roads, schools, healthcare, mobile connectivity, banking, and nutrition services must reach remote areas.
- **Participatory Development:** Development projects should be consent-based, not imposed from above.
- **Livelihood Security:** Minor forest produce, skill training, local employment, and value-chain support can reduce Maoist recruitment.
- **Accountable Administration:** Regular presence of civil officials, social audits, grievance redressal, and corruption control are needed.
- **Post-Conflict Transition:** Areas cleared of Maoist influence must quickly move from military dominance to civilian governance.

Conclusion:

Lasting peace in Maoist-affected tribal regions requires a transition from “control of territory” to “trust of people.” Security can create space for governance, but only rights, justice, and inclusive development can consolidate peace. Therefore, a humane, constitutional, and community-centred approach is essential in post-LWE regions.