VAJIRAM & RAVI

Institute for IAS Examination

Model Answers for UPSC Mains 2026

GS Paper 1

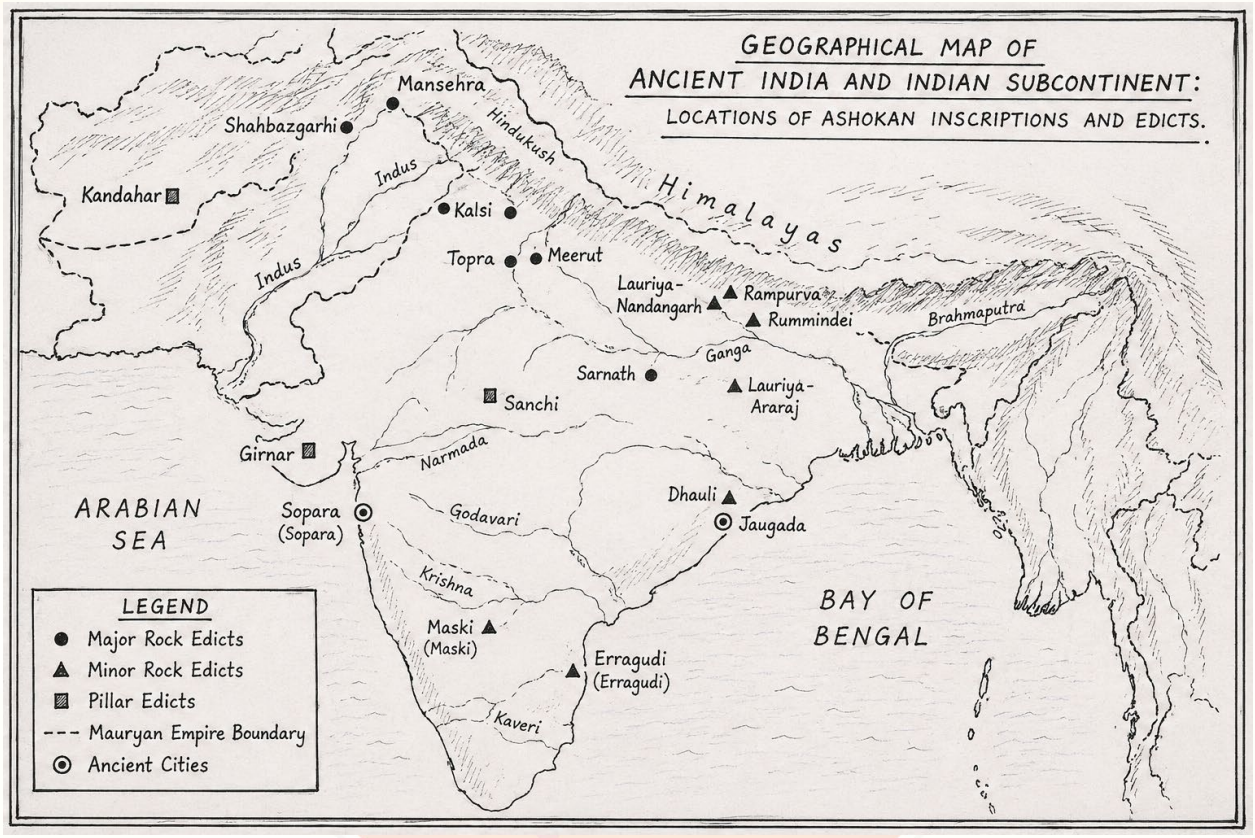
GS1 QUESTION

1. Analyze the importance of Ashokan inscriptions for reconstructing Mauryan history.
2. Discuss the impact of Macaulay's Minute on colonial administration and education in India.
3. The significance of the Gandhian movements lay in the masses they mobilized. Elucidate.
4. What is the Fujiwhara effect? Explain its impact on the movement and intensity of tropical cyclones.
5. "Tundra regions are ecologically fragile but economically important." Examine this statement critically.
6. Discuss the role of aeolian processes in desertification and land degradation.
7. "Water resources are both an asset and a source of conflict in South Asia." Examine this statement giving examples.
8. Unity in diversity remains the defining feature of Indian society despite the challenges from communalism and regionalism. Comment.
9. How do you understand disability? Substantiate the need for inclusive policy framework in India in this regard.
10. Do you think digital technology promotes social empowerment? Explain with examples.
11. Vijayanagara architecture exemplifies the amalgamation of past traditions with contemporary practices. Elucidate with examples.
12. Linguistic reorganization of Indian States was driven by popular pressure from below. Comment.
13. The model of planned economy was adopted in India to address the regional imbalances left behind by colonial rule. Comment.
14. Compare the Loo, Chinook and Foehn winds with respect to their regions of prevalence, their nature and climatic impacts.
15. Analyze the role of satellite-based technologies in achieving climate-smart agriculture and food security in India.
16. "The centre of global trade is gradually shifting from the Atlantic region to the Indo-Pacific region." Examine this statement.
17. Analyze the major drivers of human-induced land-use changes in India and their geographical consequences.
18. Is caste disappearing in urban India? Illustrate your answer with examples.
19. Critically examine the challenges of demographic transition in contemporary India.
20. Evaluate the impact of globalization on Indian youths with reference to social, political, economic and cultural spheres.

Q1. Analyze the importance of Ashokan inscriptions for reconstructing Mauryan history.

Answer

Deciphered by **James Prinsep in 1837**, Ashokan inscriptions constitute the earliest extensive corpus of contemporary royal epigraphy in India.



Importance in Reconstructing Mauryan History

A. Mapping the Empire and External Relations

1. **Geographical Spread**: Inscriptions from **Shahbazgarhi and Mansehra** (northwest) to **Kalsi** (north), **Girnar** (west), and **Brahmagiri/Yerragudi** (south) delineate the extensive territorial boundaries of the empire.
2. **Border Kingdoms**: **Major Rock Edicts (MRE) II & XIII** record southern neighbors **(Cholas, Pandyas, Satyaputras, Keralaputras, and Tamraparni/Sri Lanka)**, mapping the peninsular geopolitical landscape.
3. **International Diplomacy**: **MRE XIII** explicitly names five contemporary Hellenistic rulers **(Antiochus II, Ptolemy II, Antigonus Gonatas, Magas, and Alexander)**, providing a synchronistic chronological benchmark for ancient Indian history.

B. Reconstructing Administrative Machinery

1. **Hierarchical Cadres**: **MRE III** records provincial administrative tiers, identifying **Yuktas** (subordinate revenue officers), **Rajukas** (rural administrators/judges), and **Pradesikas** (district heads).
2. **Specialized Institutions**: **MRE V** documents the creation of **Dhamma Mahamatras**, illustrating the formal institutionalization of Ashoka's moral policy.

3. **Judicial Standardization**: **Pillar Edict IV** grants autonomy to Rajukas while mandating **Vyavahara-samata** (procedural consistency) and **Danda-samata** (uniformity in penal punishment).
4. **Paternalistic Kingship**: The **Separate Rock Edicts (Dhauli and Jaugada)** codify the state's ethical governance philosophy: "Sabbe Munisse Paja Mama" (All men are my children).

C. Understanding Dhamma and Religious Policy

1. **Civic-Ethical Code**: Inscriptions clarify that Dhamma was a secularized moral framework emphasizing **non-violence (Ahimsa),** filial piety, and humane treatment of servants rather than sectarian Buddhist dogma.
2. **Religious Pluralism**: **MRE XII** advocates **Vachaguti (restraint in speech)** and mutual respect among diverse sects, reflecting an official policy of inter-faith harmony.
3. **Non-Buddhist State Patronage**: The **Barabar Cave Inscriptions** record royal donations to the **Ajivika sect**, proving that state patronage extended beyond Buddhism.

D. Insights into Economy, Society, and Welfare

1. **Agrarian Taxation**: The **Rummindei (Lumbini) Pillar Inscription** provides direct fiscal evidence, recording the reduction of the agrarian produce share (**Bhaga) to 1/8th** and the waiver of the **religious cess (Bali).**
2. **Welfare Infrastructure**: **MRE II** and **Pillar Edict VII** record public welfare initiatives, including medicinal plant cultivation, veterinary care, road networks, and roadside wells.
3. **Social Stratification**: References to **Brahmanas, Sramanas, householders, and dasa-bhatakas (servants/slaves)** illuminate social groups recognized by the Mauryan state.

E. Linguistic and Regional Adaptability

1. **Administrative Pragmatism**: The state utilized local scripts to communicate with diverse populations, **Prakrit in Brahmi** across mainland India, **Kharosthi** in the northwest, and **Greek and Aramaic** in the bilingual **Shar-i-Kuna (Kandahar)** edict.

Limitations of Ashokan Inscriptions as Historical Sources

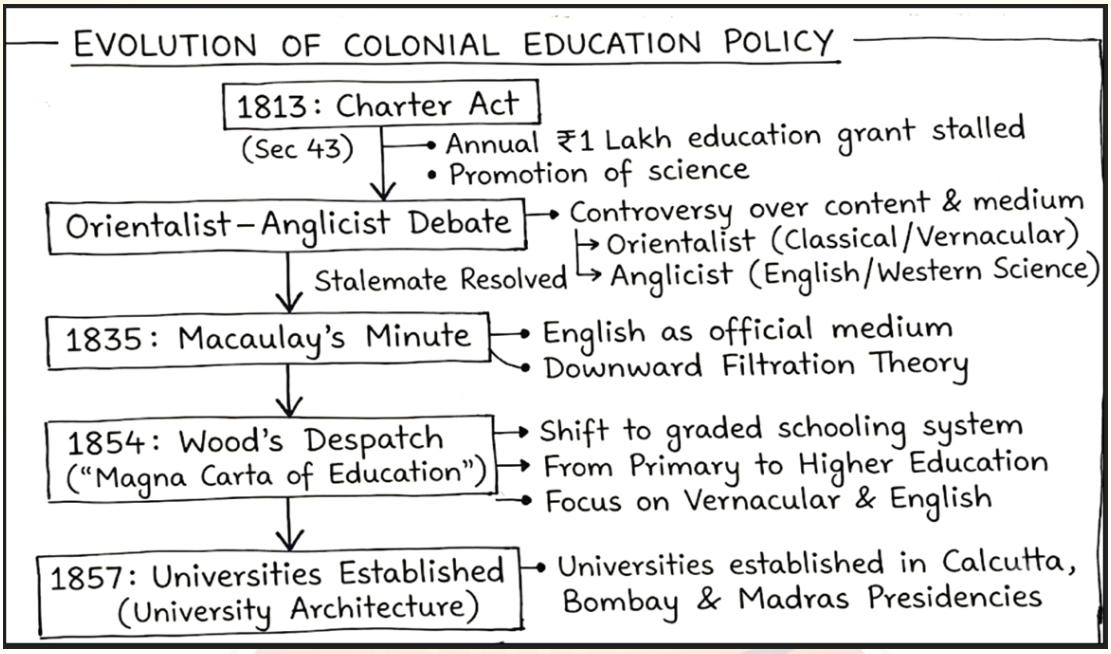
1. **Ashoka-Centric Focus**: They offer detailed insights into Ashoka's reign but remain silent on **Chandragupta Maurya, Bindusara**, and key ministerial advisors like **Chanakya**.
2. **Normative Nature**: Edicts reflect the ruler's moral ideals and prescriptive decrees rather than objective accounts of ground-level administrative implementation.
3. **Selective Omission**: The complete narrative of the **Kalinga War (MRE XIII)** is absent from the **Dhauli and Jaugada** inscriptions in Kalinga, indicating deliberate political filtering of imperial messaging.
4. **Limited Economic Data**: Inscriptions offer minimal empirical data on overall trade volumes, currency mechanics, military expenditures, and urban guilds.

Hence, Ashokan inscriptions, corroborated with archaeological and literary sources like A**rthashastra, Indica and Mahavamsa**, transformed Mauryan history into an evidence-based reconstruction, revealing the synthesis of imperial authority and ethical statecraft.

Q2. Discuss the impact of Macaulay's Minute on colonial administration and education in India.

Answer

Macaulay's Minute (1835), enacted via **Bentinck's English Education Act, 1835**, resolved the **Orientalist–Anglicist** debate in favor of Western education through the **English medium,** fundamentally restructuring colonial administration while unintentionally equipping Indians to challenge imperial rule.



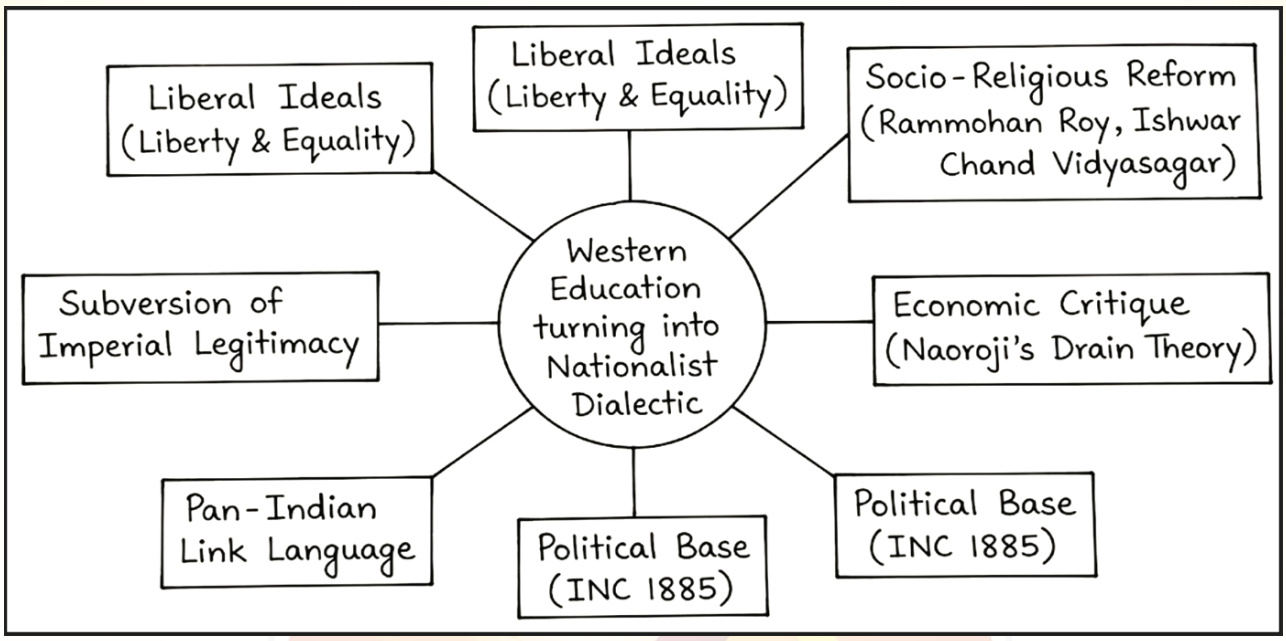
Impact on Macaulay's Policy on Education

1. **Medium of Instruction:** Established **English as the official medium for higher learning** and government patronage.
2. **Curricular Focus:** Promoted **European science, literature, and secular rationalism** over classical Sanskrit, Arabic, and Persian texts.
3. **Indigenous Systems:** Withdrew state funding from traditional institutions **(Tols, Madrasas, Pathshalas)**, leading to their decline.
4. **Access & Equity:** Institutionalized the **Downward Filtration Theory**, educating an elite minority while neglecting mass primary schooling.
5. **Social Mobility:** Linked **English proficiency to colonial administrative jobs,** creating a new urban-educated middle class.
6. **Institutional Growth:** Laid the structural trajectory culminating in the **Wood's Despatch (1854) and modern universities (1857).**
7. **Divide:** The policy deepened the **socio-linguistic divide between the English-educated elite** and vernacular-speaking masses.

Impact on Colonial Administration

1. **Supply of Low-Cost Subordinate Manpower**: Produced an inexpensive **indigenous cadre of clerks, accountants, and translators** to manage the expanding lower bureaucracy.
2. **Creation of a Cultural Buffer Class**: Intentionally cultivated an intermediary class, **"Indian in blood and colour, but English in taste, opinions, and intellect,"** to cushion against native rebellions.
3. **Administrative & Linguistic Standardization**: Replaced **Persian with English in higher courts** and state correspondence, standardizing governance across the Bengal, Bombay, and Madras Presidencies.
4. **Catalyzed Legal Codification**: Aligned with **Macaulay's leadership of the First Law Commission (1834)**, laying the groundwork for uniform colonial law via the **Indian Penal Code (1860).**

5. **Modern professional class:** Its wider consequences included the **emergence of lawyers, journalists, teachers, and professionals** who initially strengthened colonial institutions but later became important critics of imperial rule.



Macaulay's policy aimed at **imperial consolidation**, yet its unintended dialectic was transformative. It equipped the educated middle class with the **intellectual vocabulary and constitutional tools** to challenge colonial legitimacy.

Q3. The significance of the Gandhian movements lay in the masses they mobilized. Elucidate.

Answer

Gandhian movements transformed Indian nationalism from an **elite-led political struggle into a broad-based mass movement** by connecting the freedom struggle with everyday grievances of peasants, workers, women, and marginalized groups.

Gandhian Movements Broadened the Social Base of Nationalism

1. **Peasant Mobilisation:** Linked agrarian grievances with nationalism; **Champaran (1917)** and **Kheda (1918)** mobilised peasants around indigo cultivation and land revenue issues.
2. **Working-Class Participation:** Extended nationalism to industrial centres; **Ahmedabad Mill Strike (1918)** demonstrated the use of satyagraha in labour struggles.
3. **Women's Political Participation:** Opened new spaces for women in public action; **Salt Satyagraha (1930)** witnessed widespread participation in salt-making and picketing.
4. **Youth and Middle-Class Mobilisation:** Boycott of colonial institutions widened participation; **Non-Cooperation Movement** drew students, lawyers and professionals into politics.
5. **Regional and Community Mobilisation:** Connected diverse regional struggles with nationalism; **Khan Abdul Ghaffar Khan's Khudai Khidmatgars** strengthened the movement in the North-West Frontier Province.

Historical Significance of Mass Mobilisation in Gandhian Movements

1. **From Elite to Mass Nationalism:** Converted Congress from a primarily elite political organisation into a **broad-based national movement**; Nagpur reorganisation introduced **linguistic Provincial Congress Committees and mass membership**.
2. **Lowered the Entry Barrier:** **Satyagraha, boycott, spinning, picketing and courting arrest** required neither wealth nor sophisticated political knowledge; ordinary people could participate.
3. **Created Political Consciousness:** Turned everyday issues such as **salt, land revenue and foreign cloth** into symbols of colonial exploitation; nationalism entered everyday life.
4. **Built Collective Fearlessness:** Mass civil disobedience challenged psychological authority of colonial rule; **Dandi March (1930)** demonstrated that ordinary people could openly defy imperial laws.
5. **Strengthened National Integration:** Connected **rural–urban, regional and class interests** under a common anti-colonial platform; **Non-Cooperation–Khilafat alliance** temporarily broadened Hindu-Muslim mobilisation.
6. **Expanded Constructive Nationalism:** Linked political freedom with **khadi, swadeshi, removal of untouchability & village reconstruction**; **Harijan Sevak Sangh (1932)** reflected this social dimension.
7. **Made Struggle Self-Sustaining:** During **Quit India (1942)**, mass participation continued despite the arrest of central leaders; **parallel governments at Satara, Ballia and Tamluk** demonstrated decentralised resistance.
8. **Enhanced Colonial and International Pressure:** Large-scale non-violent mobilisation undermined the legitimacy of colonial rule; **Dharasana Satyagraha (1930)** attracted international attention to British repression.

"Swaraj is not a gift of the British Parliament; it is a gift of the people." Gandhian movements made this idea a lived reality by transforming millions of Indians from **subjects of colonial rule into participants in the struggle for freedom**.

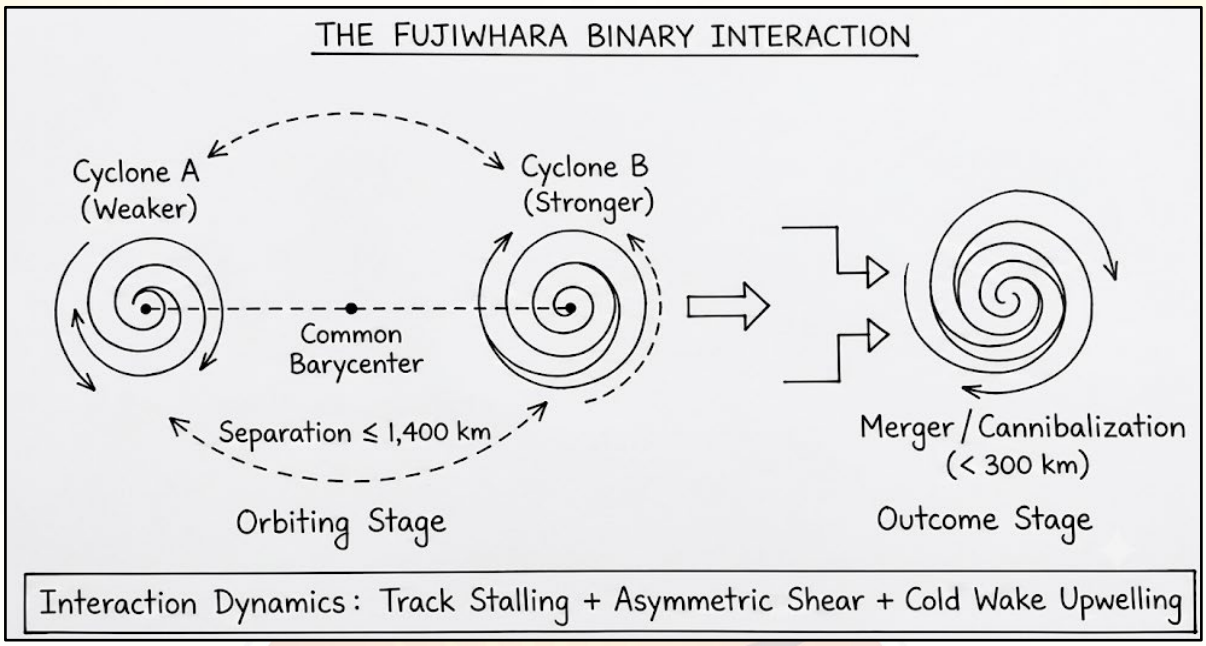
Q4. What is the Fujiwhara effect? Explain its impact on the movement and intensity of tropical cyclones.

Answer

The Fujiwhara effect, first described by Japanese meteorologist **Sakuhei Fujiwhara in 1921**, is the phenomenon in which **two nearby tropical cyclones** begin to rotate around a **common center** of rotation, or **barycenter**, once their separation narrows to roughly **1,400 km or less.** The stronger, larger system typically sits closer to the barycenter while the weaker one orbits farther out.

Impact on Movement

1. **Mutual Cyclonic Orbiting**: Both vortices rotate around a common barycenter (**anticlockwise in the Northern Hemisphere** and clockwise in the Southern Hemisphere), overriding the regional steering influence of the subtropical ridge.
2. **Erratic Looping and Stalling**: Kinematic interaction causes sharp track reversals and stalling.
    a. **Example:** **Typhoon Parma (2009)** made three distinct landfalls in the Philippines as it was dragged into a looping track by the stronger **Typhoon Melor**.



3. **Slingshot Ejection**: Large disparities in vortex size can accelerate the smaller cyclone outward onto an erratic, high-speed path once the systems disengage.
4. **Vortex Coalescence (Merger)**: If the separation distance contracts to **under 300km**, the circulations collapse into a single combined vortex.

Impact on Intensity

1. **Asymmetric Vertical Wind Shear**: Outflow from the dominant storm imposes severe upper-level shear on the companion vortex, tilting its convective chimney and triggering rapid decay.
    a. **Example: Hurricane Wilma (2005)** exerted strong wind shear on **Tropical Storm Alpha**, tearing apart its circulation.
2. **Moisture and Vorticity Cannibalization**: The stronger low-pressure core pulls the primary moisture inflow and angular momentum away from the peripheral storm, starving it of latent heat energy.
3. **Cold-Wake Upwelling & Weakening**: Mutual stalling drives continuous **Ekman pumping**, bringing cold sub-thermocline water to the surface. This drops **Sea Surface Temperatures (SST)** below the **26.5°C threshold**, weakening both systems.
4. **Expanded Post-Merger Footprint**: While mergers rarely double core wind speeds, they significantly broaden the **Radius of Maximum Winds (RMW)**, widening coastal storm surge zones and rainfall footprints.

Regional relevance and way forward

While binary interactions are more frequent in the **Western Pacific,** warming trends in the **Bay of Bengal and Arabian Sea** increase the probability of **overlapping cyclogenesis,** requiring specialized disaster risk reduction protocols:

1. Strengthening **IMD's Doppler Weather Radar** network and leveraging **INSAT-3DS** for finer-resolution tracking of binary systems.
2. Coupled ocean–atmosphere models to capture the **SST-cooling feedback** these interactions cause.

3. Flexible, rolling evacuation protocols for **coastal Odisha, Andhra Pradesh, and West Bengal,** given the high track-forecast uncertainty such interactions introduce.

The **Fujiwhara effect** illustrates the non-linear, chaotic character of **tropical cyclone dynamics**. As warming oceans raise the odds of **overlapping cyclogenesis**, integrating high-resolution radar, satellite, and coupled models into India's early-warning architecture is essential for coastal disaster risk reduction.

Q5. "Tundra regions are ecologically fragile but economically important." Examine this statement critically.

Answer

The Tundra is a cold, treeless landscape found primarily along the **Arctic margins of North America, Greenland, Europe, and Russia,** as well as at high mountain elevations as alpine tundra. Their role as both a global climate regulator and resource frontier creates a **significant development–conservation dilemma.**

Ecological fragility of tundra regions

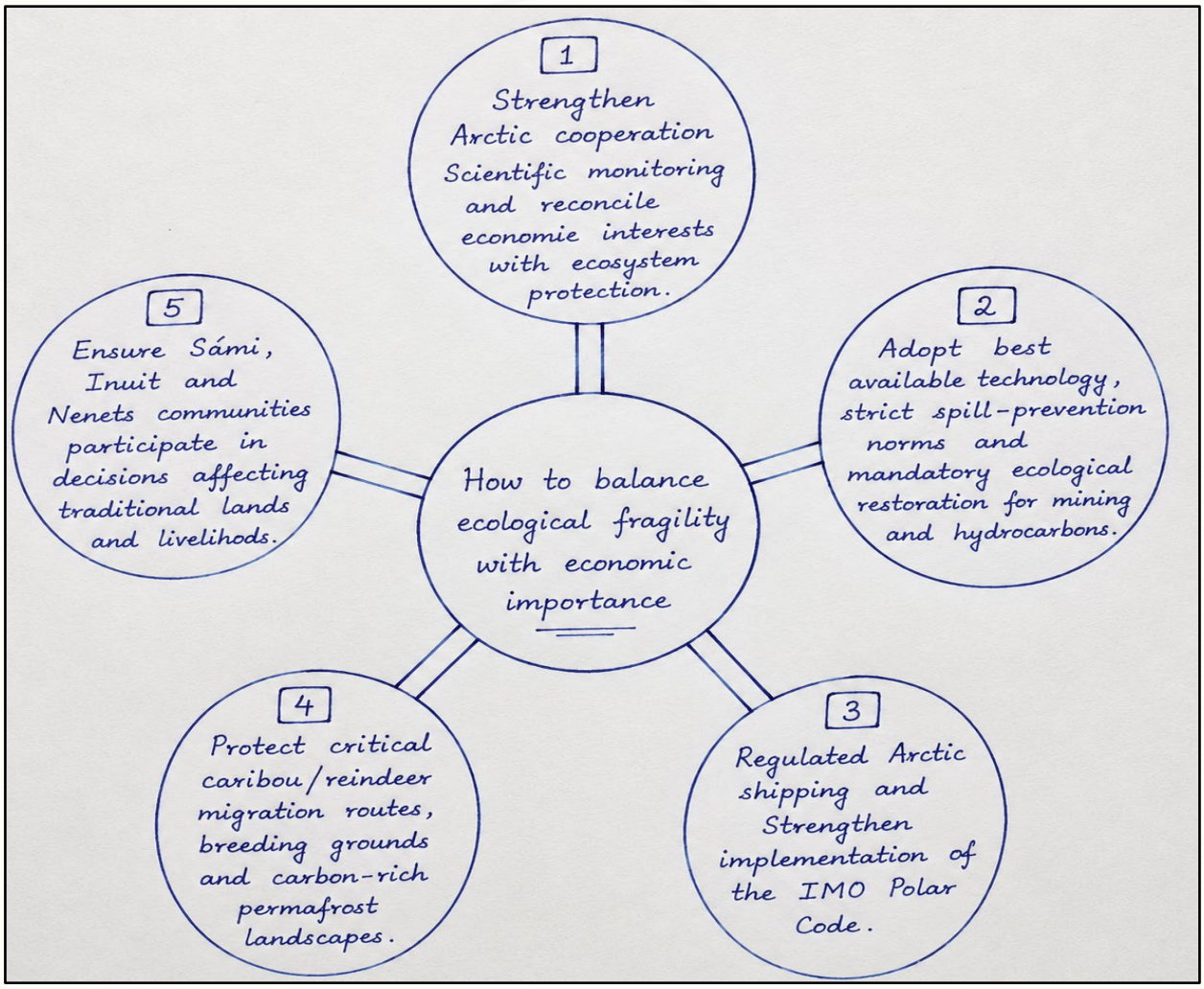
1. **Extremely Slow Ecological Recovery:** The harsh climate and low temperatures severely restrict plant growth and soil formation.
    a. **Example:** Vegetation recovery in high-Arctic and high-elevation sites requires over **30 years.**
2. **Highly Vulnerable Biodiversity:** The highly specialized flora and fauna cannot rapidly adapt to changing temperatures and invasive species.
    a. **Example:** A decline in foundational vegetation like lichens has contributed to a **50% drop in global migratory caribou and reindeer populations** over the last two decades.
3. **Climate Feedback Loop:** Thawing permafrost releases **trapped organic carbon** as carbon dioxide and methane, triggering a **vicious cycle of accelerated global warming**.
    a. **Example:** Globally, permafrost is estimated to contain **1,700 billion metric tons of carbon,** which is roughly **three times the amount** currently in the atmosphere.
4. **Rise of Peatland Wildfires:** Drying permafrost creates highly combustible underground peatlands that are difficult to extinguish.
    a. **Example: "Zombie fires" in the Siberian Tundra.**

Economic importance

1. **Massive Mineral and Energy Resources:** The biome is a strategic repository of **conventional energy** and critical industrial metals.
    a. **Example:** The **US Geological Survey (USGS)** estimates the Arctic circle holds **13%** (90 billion barrels) of the **world's undiscovered oil** and 30% of its undiscovered natural gas.
2. **Hydrocarbon frontier:** Arctic tundra and adjoining continental shelves contain major oil and natural-gas reserves.
    a. **Example: Alaska's North Slope, Russia's Yamal region and Norway's Arctic energy sector.**
3. **Transformative Maritime Routes:** Retreating sea ice is unlocking shorter, highly profitable global trade routes that bypass traditional chokepoints.
    a. **Example:** Retreating sea ice is improving seasonal accessibility of the **Northern Sea Route,** potentially shortening maritime connectivity between **Europe and East Asia**.
4. **Expansion of the Blue Economy:** Warming waters are shifting marine boundaries, creating lucrative commercial fishing opportunities previously blocked by ice.
5. **Growing strategic importance:** Resources and emerging sea routes have increased the geopolitical significance of the Arctic for Russia, the US, Canada, and Nordic states.

Critical examination

1. **Self-Destructive Infrastructure:** Economic expansion is **paradoxically destroying its own foundation** through permafrost degradation.
    a. **Example:** Over **70% of current Arctic infrastructure**, including pipelines, roads, and mining towns, is at high risk of structural collapse due to thawing ground.
2. **Sidelining of Conservation Mandates:** Strategic competition between Arctic states has frequently stalled the Arctic Council's ability to enforce binding conservation treaties.
3. **Marginalization of Indigenous Rights:** The push for economic expansion frequently prioritizes state and corporate interests over traditional inhabitants.
4. **Amplified Industrial Disasters*:*** Resource extraction in extreme, frozen climates makes disaster response and environmental cleanup nearly impossible.
    a. **Example*:*** The **2020 Norilsk diesel spill** released 20,000 tons of oil into local rivers

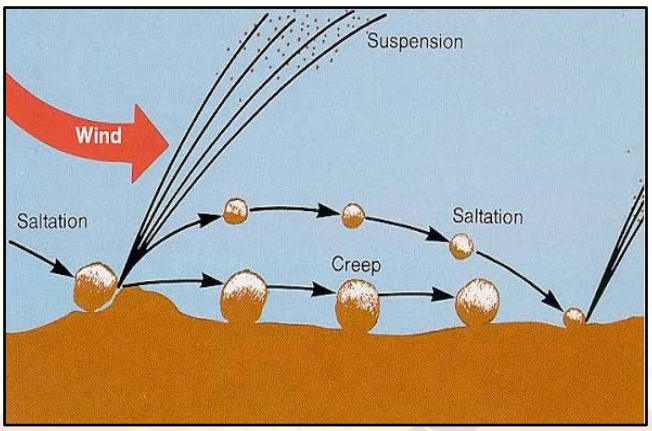


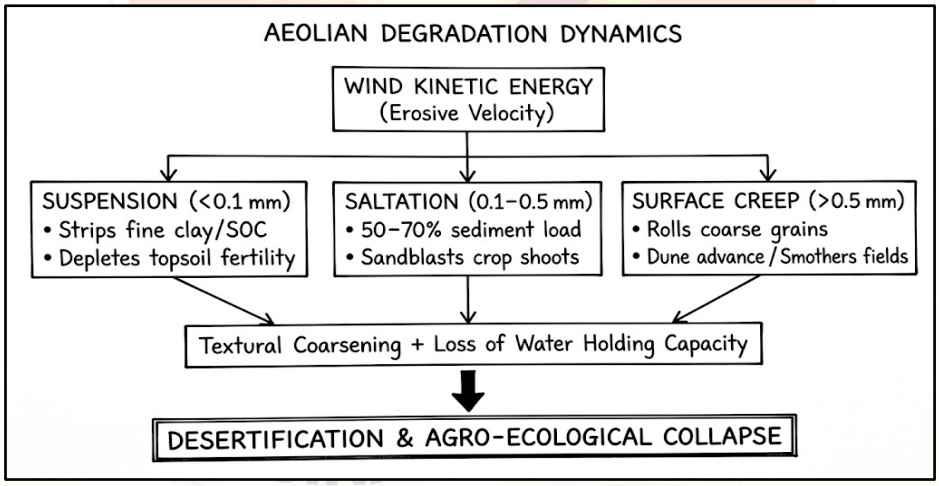
Tundra is **not a barren frontier but a sensitive ecological infrastructure;** its economic potential can endure only when development remains within its ecological carrying capacity.

Q6. Discuss the role of aeolian processes in desertification and land degradation.

Answer

Aeolian processes, governed by **wind-driven erosion (deflation/abrasion)**, transportation **(saltation/suspension/creep)**, and deposition, are the primary physical drivers of land degradation in **arid and semi-arid drylands**, turning productive ecosystems into desertified wastelands.





Role of Aeolian Processes in Desertification and Land Degradation

1. **Initiates soil fertility loss:** Deflation removes fine, nutrient-rich particles and **soil organic carbon**, exposing infertile subsoil and reducing land productivity.
2. **Diminishes soil moisture retention:** Selective winnowing removes finer soil fractions, leaving coarse sediments that have **lower water-holding capacity** and intensify moisture stress.
3. **Converts productive land into barren surfaces:** Saltation and surface creep mobilise dunes and sand sheets, **burying croplands, pastures and irrigation infrastructure** under shifting sand.
4. **Accelerates vegetation degradation:** Mechanical abrasion by **saltating** particles damages seedlings and plant surfaces, weakening vegetation cover and exposing soils to further erosion.
5. **Expansion of desertification:** Aeolian transport carries sand and dust into adjoining productive landscapes, **extending degradation beyond the original source areas**.

6. **Self-reinforcing degradation cycle:** Loss of fertile topsoil reduces vegetation growth, while declining vegetation exposes more soil to wind erosion, thereby **perpetuating desertification**.
7. **Disrupts ecosystem functioning:** Dust mobilisation removes essential nutrients from source regions and affects **photosynthesis, soil chemistry and nutrient cycling** in both source and deposition areas.
8. **Amplifies anthropogenic land degradation:** Overgrazing, deforestation and unsustainable cultivation reduce protective vegetation, making exposed soils **more susceptible to aeolian erosion and subsequent desertification**.

Indian Context & Empirical Footprint

1. According to the **ISRO Desertification and Land Degradation Atlas (2021), 29.7% of India's Total Geographic Area (TGA)** is undergoing degradation.
2. **Wind erosion** accounts for ~**5.46% of total degradation,** concentrated in **Rajasthan and Gujarat**, where active sand sheets advance **eastward** through the **Aravalli gaps** toward the Indo-Gangetic plains.

Mitigation Framework

1. **Shelterbelts & Windbreaks**: Planting **multi-tier linear vegetative barriers** (**Khejri,Umbrella Thorn**) perpendicular to erosive winds to cut surface wind velocity.
2. **Dune Stabilization**: Constructing **checkerboard brushwood micro-windbreaks** and mulching with **drought-tolerant perennial grasses** like Lasiurus scindicus (Sewan grass).
3. **Aravalli Green Wall Project**: Developing a **1,400 km ecological green belt** along the Aravalli range to halt the eastward march of the Thar Desert.
4. **Conservation Agriculture**: Practicing **zero-tillage, cover cropping, and stubble retention** to preserve surface roughness and prevent wind deflation.

Aeolian degradation turns fragile drylands into wasteland through topsoil loss and dune advance. Meeting India's **Land Degradation Neutrality** pledge under **UNCCD COP14** needs mechanical fixation paired with community agroforestry.

Q7. "Water resources are both an asset and a source of conflict in South Asia." Examine this statement giving examples.

Answer

South Asia, home to nearly a **quarter of the world's population** but possessing less than **5% of global freshwater resources**, depends heavily on transboundary rivers, making water simultaneously an asset for development and a potential source of regional conflict.

Water as an asset in South Asia.

1. **Agricultural lifeline:** **Ganga-Brahmaputra-Meghna** and Indus systems support **irrigation and food security** across **India, Pakistan, Bangladesh and Nepal.**
    a. **Example:** **The Ganga Water Treaty (1996)** facilitates lean-season water sharing, supporting irrigation and food security in **Bangladesh.**
2. **Clean energy**: **India–Bhutan cooperation** on projects such as **Punatsangchhu-II (1,020 MW)** converts **Himalayan water into hydropower**, export revenue and energy security.
3. **Water security**: The **Indus Waters Treaty (1960)** provides an institutional framework for sharing the **Indus river system**, supporting irrigation and water security in both countries.

4. **Development cooperation**: The India-built **Salma Dam (Afghan-India Friendship Dam)** on the **Hari Rud** provides irrigation and hydropower, demonstrating water infrastructure as a development asset.
5. **Disaster management:** Sharing river-flow and rainfall data can enable **early flood warnings,** particularly for downstreamcountries.
    a. **Example**: India–Nepal sharing of hydrological data can protect downstream communities, as highlighted byrecent **2026 Bhote Koshi River in Rasuwa, Nepal.**

Water as a source of conflict in South Asia

Upstream–downstream tensions	1. Countries controlling upstream flows can influence downstream water availability. a. **Example:** China's dams on the **Yarlung Tsangpo** (Brahmaputra) raise concerns in India and Bangladesh regarding downstream flows and flood management. 2. Teesta water-sharing remains unresolved between India and Bangladesh.
Climate-induced water stress	1. **Glacier retreat** is creating a short-term flood risk but long-term water-security challenge. 2. **ICIMOD's 2025 report** recorded exceptionally low snow persistence in the **HKH region**, affecting the seasonal water availability of the Indus, Ganga and Brahmaputra basins. 3. Reduced glacier contribution will increase dependence on an increasingly erratic monsoon, intensifying dry-season stress.
Competing demands	1. Agriculture, drinking water, hydropower and ecological requirements increasingly compete for the same resource. 2. Reduced flows can also increase dependence on groundwater and reservoirs, aggravating depletion.
Weak regional cooperation	1. The absence of comprehensive basin-level institutions and **limited real-time data sharing** creates mistrust. 2. Existing arrangements such as the **India-Bangladesh Joint Rivers Commission** provide a framework, but implementation remains challenging.

Way Forwad: From Water Conflict to Water Cooperation

1. Move beyond river-specific treaties towards integrated basin-level management involving all riparian states.
2. Ensure **real-time sharing** of rainfall, snow, glacier and river-flow **data** to build trust and strengthen early-warning systems.
3. Undertake collaborative management of GLOFs, floods, droughts and hydropower risks across the Himalayan region.
4. Strengthen Joint River Commissions, **ICIMOD and BBIN for scientific research,** monitoring and coordinated climate adaptation.
5. Shift from merely dividing water to sharing benefits through hydropower, navigation, flood control and energy cooperation.
6. Make **existing agreements climate-resilient** by incorporating glacier retreat, changing precipitation patterns and future water availability.

South Asia's water challenge is gradually shifting from **"who gets how much water"** to **"how can we collectively manage an uncertain water future."** Climate change makes confrontation increasingly costly; transboundary cooperation, therefore, is not merely desirable but a strategic necessity for regional security and development.

Q8. Unity in diversity remains the defining feature of Indian society despite the challenges from communalism and regionalism. Comment.

Answer

Rooted in **Vasudhaiva Kutumbakam,** India's cohesion is an organic synthesis of pluralism, a **unity of diversity rather than unity despite it.** Constitutional democracy, economic interdependence, and composite culture effectively counter emerging centrifugal pressures.

Challenges to Unity

1. **Communal Polarization**: Sectarian flare-ups and hate speech periodically disrupt social harmony (e.g., **2023 Nuh clashes**), with digital platforms rapidly amplifying rumor-driven tension.
2. **Urban Ghettoization**: Religious and caste fault lines foster **residential segregation(e.g. Delhi, Ahmedabad)** and informal discrimination within metropolitan housing and labor markets.
3. **"Sons-of-the-Soil" Job Quotas**: Parochial regionalism drives state legislation reserving private jobs for locals (e.g., **Haryana's local quota law**), conflicting with **Article 19(1)(e)** mobility rights.
4. **Inter-State Resource Disputes**: Sub-national chauvinism fuels recurring interstate conflicts, notably the **Cauvery water dispute** (Tamil Nadu–Karnataka) and border flare-ups.
5. **Linguistic Friction**: Resistance to perceived linguistic imposition(e.g. Resistance to NEP'**s 3 Language formula** by T.N., W.B.) periodically challenges **national education/language frameworks** and sharpens regional identity assertion.

Sustaining Unity in Diversity

1. **Constitutional Architecture**: Fundamental Rights **(Articles 14, 25–30)** and asymmetric federal arrangements **(Fifth/Sixth Schedules, Article 371)** accommodate diverse identities within a single democratic framework.
2. **Pan-Indian Economic Interdependence**: **GST-driven** market integration and extensive internal labor migration (**over 450 million migrants, Census 2011**) create shared cross-state economic stakes.
3. **Composite Culture & Syncretism**: Living traditions such as **Ganga-Jamuni Tehzeeb,** shared reverence at shrines **(Ajmer Sharif, Sabarimala)**, and multi-faith festival participation, bridge societal divides.
4. **Institutionalized Linguistic Pluralism**: The **Eighth Schedule's 22 recognized languages** validate regional cultural pride without enforcing monolingual uniformity.
5. **Democratic Legitimacy & National Anchors**: Robust, cross-sectional electoral participation (**~65.8% in 2024 Lok Sabha elections**) combined with stabilizing national institutions (**Supreme Court, All-India Services, Armed Forces**) ensures structural unity.

India's unity endures not by suppressing differences, but by **institutionalizing diversity** through constitutional morality, civic secularism, and shared growth, keeping the republic resilient on its journey toward **Viksit Bharat**.

Q9. How do you understand disability? Substantiate the need for inclusive policy framework in India in this regard.

Answer

Disability refers to limitations in participation arising from the interaction between an individual's impairment and societal barriers. In India, where 2.68 crore persons (2.21%) were recorded as persons with disabilities (Census 2011), ensuring accessibility, dignity and equal opportunity becomes essential; the RPwD Act, 2016 provides a rights-based framework for this inclusion.

Understanding Disability

1. **Beyond Medical Impairment:** Disability arises from the interaction of a long-term impairment with social, environmental and institutional barriers; **Section 2(s) of RPwD Act, 2016** explicitly reflects this shift from medical to **social model of disability.**
2. **Rights-Based Approach: RPwD Act, 2016** moves beyond charity towards **substantive equality, dignity, autonomy and non-discrimination**, imposing positive obligations on State to secure these rights.
3. **Social Construction:** Social attitudes, **stigma** and institutional practices can transform an impairment into social disadvantage, making disability **partly a societal phenomenon**.
4. **Intersectional Character:** Disability can compound disadvantage based on gender, poverty & rural location; **69% of India's persons with disabilities lived in rural areas** (Census 2011.)
5. **Diverse Nature:** The impact of disability varies with **age, type of impairment & surrounding circumstances**; Census 2011 itself classifies disability across multiple categories and age groups.

Existing Challenges Necessitating Inclusive Policies

1. **Discrimination & Social Exclusion:** Persons with disabilities face **stigma, discrimination and unequal opportunities**; despite Articles 14, 15 and 21, barriers to equal citizenship persist.
2. **Economic Exclusion:** Only **36% of persons with disabilities were workers** in Census 2011; limited employment and skills can increase **economic dependency**.
3. **Physical Accessibility Barriers:** Inaccessible **buildings, transport and public spaces** restrict mobility and independent participation; accessibility remains uneven despite **Sugamya Bharat Abhiyan**.
4. **Educational Exclusion:** Inadequate **accessible infrastructure, learning materials and reasonable accommodation** can push children with disabilities out of mainstream education.
5. **Assistive Technology Gap: High costs and limited availability** of assistive devices constrain mobility, communication and independence, particularly among economically vulnerable persons.
6. **Digital Exclusion:** Increasing digitalisation of **welfare delivery and public services** can create new barriers where websites, applications and digital content are not accessible.

Way Forward: Rights-Based Inclusion

1. **Universal Accessibility:** Enforce accessibility standards across **buildings, transport, ICT and public services**, with time-bound compliance and audits.
2. **Inclusive Human Capital:** Strengthen **inclusive education, skill development and employment** through reasonable accommodation and targeted incentives.
3. **Affordable Assistive Technology:** Expand access to **locally developed, affordable and need-specific assistive devices** through schemes such as **Assistance to Persons with Disabilities for Purchase/Fitting of Aids and Appliances**.
4. **Participatory Governance:** Adopt a **"nothing about us without us"** approach by involving persons with disabilities in policy formulation, implementation and monitoring, consistent with **United Nations Convention on the Rights of Persons with Disabilities** principles.

An inclusive India must move from **"welfare for persons with disabilities" to "equal participation of persons with disabilities."** This is consistent with the **SDG principle of leaving no one behind** and the constitutional promise of **dignity and substantive equality**.

Q10. Do you think digital technology promotes social empowerment? Explain with examples.

Answer:

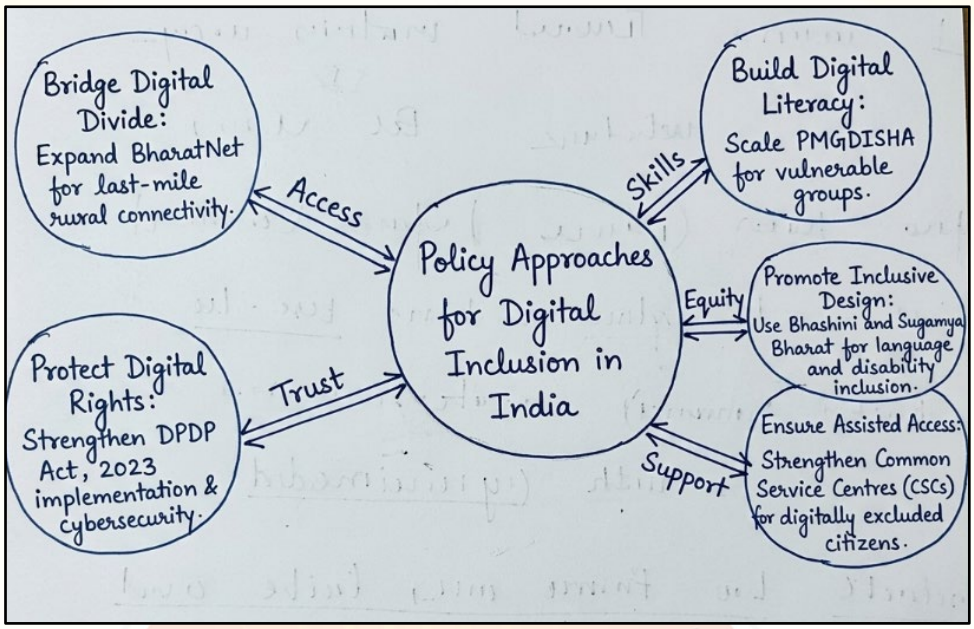
Digital technology has shifted empowerment from merely **access to services** towards **access to information, opportunities and voice**; however, its benefits depend on **digital access, literacy and inclusion**.

Digital Technology as an Enabler of Social Empowerment

1. **Financial Autonomy:** Digital payments and banking enhance economic agency among **women, migrants and informal workers**; **JAM–UPI** enables low-cost transactions without dependence on intermediaries.
2. **Welfare Empowerment: DBT and Aadhaar-enabled delivery** reduce dependence on middlemen and improve access to entitlements; this particularly empowers **poor, elderly and vulnerable beneficiaries** through direct and portable transfers.
3. **Educational Empowerment:** Digital learning expands opportunities for **rural, tribal and disadvantaged students**; **DIKSHA and PM e-VIDYA** provide learning resources beyond geographical and infrastructural constraints.
4. **Healthcare Inclusion:** Telemedicine improves access for **rural communities, elderly persons and persons with mobility constraints**; **e-Sanjeevani** enables remote doctor consultations, reducing distance barriers.
5. **Women's Agency:** Digital literacy and connectivity strengthen **women's voice, livelihood choices and access to markets**; **Sanchar Shakti** supported rural women, including SHG members, in using ICT for skills and economic opportunities.
6. **Tribal & Marginalised Livelihoods:** Digital platforms can connect **tribal artisans and small producers** to wider markets, reducing dependence on local intermediaries; platforms such as **TRIFED's Tribes India** support digital marketing of tribal products.
7. **Voice & Civic Participation:** Digital platforms enable **marginalised groups to express concerns and access grievance redressal**; **MyGov and CPGRAMS** provide channels for citizens to communicate with public authorities.
8. **Inclusion & Identity:** Digital accessibility can improve social participation of **persons with disabilities and other excluded groups**; accessible digital services reduce barriers to information, welfare and public services.

Digital Technology as a Source of New Exclusion

1. **Access & Infrastructure Divide:** Unequal connectivity and device access exclude remote and poorer communities; only **14.9% of rural households** have internet access compared with **42% of urban households**.
2. **Gendered Digital Divide:** Social norms and unequal access to devices constrain women's digital participation; **NFHS-6 found only 64% of women aged 15–49** had ever used the internet, compared with **80% of men**.
3. **Technology-Induced Welfare Exclusion:** Authentication and connectivity failures can prevent genuine beneficiaries from accessing entitlements; a study in **Ranchi, Jharkhand**, found biometric authentication problems affecting PDS access.
4. **Cybersecurity Vulnerability:** Greater digital dependence exposes citizens to fraud, identity theft and online exploitation; **NCRB recorded 86,420 cybercrime cases in 2023, of which 59,526 (68.9%) involved fraud.**
5. **Algorithmic & Accessibility Exclusion:** Biased datasets can disadvantage under-represented groups, while inadequate **vernacular and disability-friendly interfaces** can exclude persons with disabilities and low-literacy users.



As **Amartya Sen's** capability approach suggests, development is about expanding people's substantive freedoms; digital technology can fulfil this role only when access, capability and inclusion accompany connectivity.

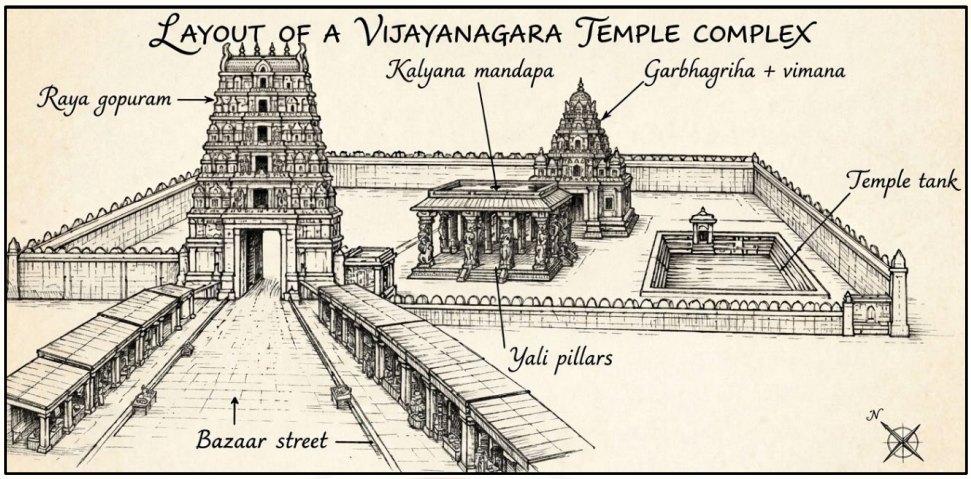
Q11. Vijayanagara architecture exemplifies the amalgamation of past traditions with contemporary practices. Elucidate with examples

Answer

Developed under the Vijayanagara Empire (14th–16th centuries), Hampi became a "living synthesis" of inherited South Indian architectural traditions and the empire's contemporary political, religious and urban needs. Its monuments therefore reveal not mere continuity, but selective adaptation and creative fusion of earlier forms with new architectural innovations.

Continuity with Earlier Architectural Traditions

1. **Dravidian Temple Tradition:** Continued **Pallava–Chola tradition** of temple architecture, retaining elements such as **garbhagriha, mandapa, prakara and vimana**; the **Virupaksha Temple, Hampi** reflects this continuity with established South Indian forms.
2. **Chola Legacy:** Continued tradition of **separate Amman shrines and elaborate temple enclosures**; this became prominent in Vijayanagara temple complexes.
3. **Hoysala–Chalukya Influence:** Adopted richly carved pillars and sophisticated water structures; the **Pushkarani at Hampi** reflects earlier Western Chalukya–Hoysala traditions.
4. **Traditional Iconography:** Continued extensive depiction of **Ramayana, Mahabharata and Puranic themes**; **Hazara Rama Temple** is particularly noted for narrative reliefs.



Contemporary Innovations and Architectural Adaptation

1. **Hydraulic Innovation:** Urban architecture incorporated sophisticated **water-management systems**; **Royal Centre Pushkarani** used stepped granite construction, while **Queen's Bath** had channels supplying and draining its bathing pool.
2. **Integrated Urban Planning:** Temples, **bazaars, residential quarters, tanks and fortifications** were integrated with **Hampi's natural landscape,** transforming the traditional temple-centred settlement into a large imperial metropolis..
3. **New Ritual Spaces:** The growing importance of royal festivals created specialized spaces such as **Kalyana Mandapas & chariot streets**; **Achyutaraya Temple** illustrates this expansion of ritual architecture.
4. **Royal-Civic Architecture:** Architecture increasingly served **ceremonial & political functions**; **Mahanavami Dibba** provided a monumental platform for royal ceremonies and processions, with carvings depicting horses, soldiers and courtly life.
5. **Monumental Scale:** Earlier Dravidian forms were enlarged into **lofty gopurams and massive enclosures**; **Krishna Temple** at Hampi exemplifies this monumentalization.
6. **Indo-Islamic Synthesis:** Contact with Deccan Sultanates introduced arches, vaults & domes into **secular architecture; Lotus Mahal** combines cusped arches with Hindu-derived decorative forms, while **Elephant Stables** use domed chambers and arched entrances.

Vijayanagara architecture was neither a break from past nor mere imitation; it evolved Dravidian traditions through monumentality, new ritual spaces, engineering & cross-cultural influences, making Hampi, in **UNESCO's words**, an evolved form of Dravidian architecture marked by innovation and experimentation.

Q12. Linguistic reorganization of Indian States was driven by popular pressure from below. Comment.

Answer

Post-independence leadership **resisted linguistic statehood, fearing Balkanization**. Intense popular mobilization from below eventually forced the Union to abandon this caution and redraw India's federal map along linguistic lines.

Evidence of pressure from below

1. **Andhra Movement**: **Potti Sreeramulu's 58-day fast unto death (1952)** forced Nehru to concede Andhra State (1953), the first linguistic state.
2. **Domino effect**: Andhra's creation triggered similar demands across **Telugu, Marathi, Gujarati, and Punjabi-speaking regions** within a decade.
3. **Samyukta Maharashtra Movement**: Mass protests against a bilingual **Bombay State,** led by the **Samyukta Maharashtra Samiti**, demanded a separate Marathi state with Bombay as capital.
4. **Maha Gujarat Movement**: Parallel agitation under **Indulal Yagnik** demanded a separate Gujarati-speaking state, together forcing **Bombay's bifurcation in 1960.**
5. **Punjabi Suba Movement**: **Akali Dal-led mobilization** under Master Tara Singh and Sant Fateh Singh secured **Punjab's trifurcation into Punjab, Haryana, and Himachal Pradesh (1966)**.
6. **Pre-independence roots**: The **1920 Nagpur Congress session** reorganized **Provincial Congress Committees on linguistic lines,** embedding language as a mobilizing tool before independence.
7. **Post-1966 continuation**: **Telangana's creation (2014)**, after decades of sub-regional agitation, shows the bottom-up template persisting into the 21st century.

Top-down hesitation that popular pressure overcame

1. **Dhar Commission (1948)**: Recommended **against linguistic division**, prioritizing administrative convenience and financial viability.
2. **JVP Committee (1949)**: Nehru, Patel, and Pattabhi Sitaramayya jointly **deferred linguistic states** to safeguard newly won unity and manage post-Partition rehabilitation.
3. **States Reorganisation Commission (1953)**: Convened only after **sustained unrest; rejected the "one language, one state"** extreme but **accepted linguistic homogeneity** as an administrative criterion.
4. **Institutional outcome**: The **States Reorganisation Act and Seventh Constitutional Amendment (1956)** formalized the shift, but only after years of elite resistance.

Counterview: the process was not purely bottom-up

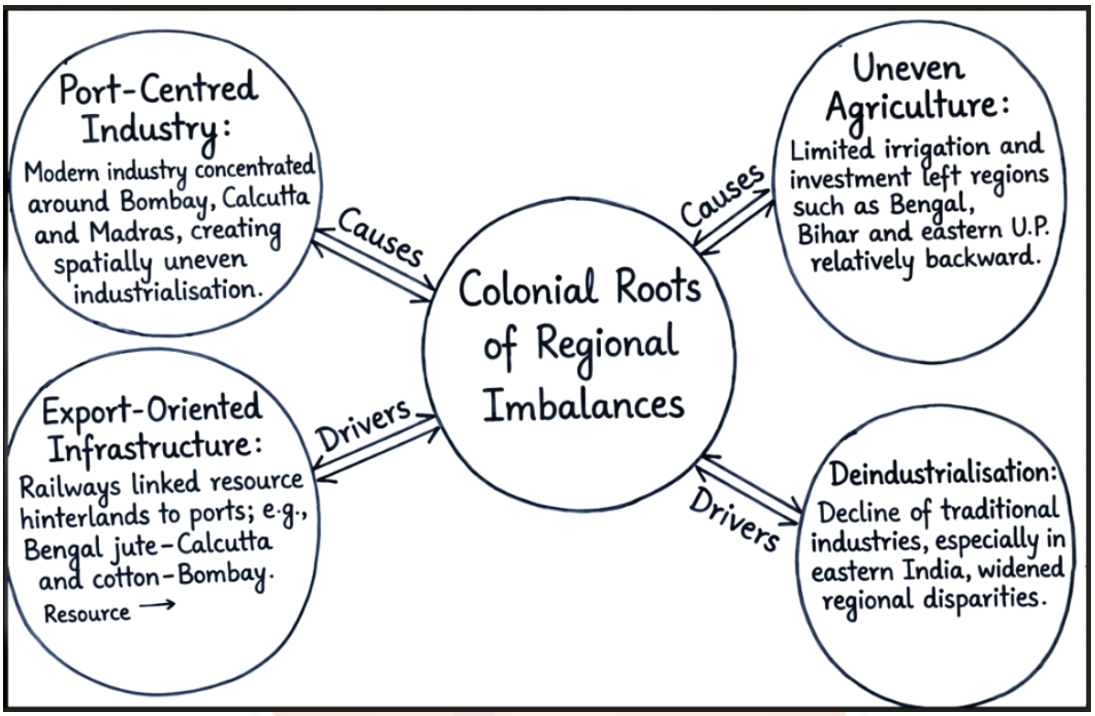
1. **Centre's discretion**: The Union retained real control over boundaries and timing, Bombay's split came **years after the agitation that first demanded it.**
2. **Security and ethnic calculations**: Later states like **Nagaland (1963) blended linguistic demand with tribal identity and security concerns** rather than language alone.
3. **Elite mediation**: Commissions like the SRC, not the streets, ultimately drew final boundaries, popular pressure set the agenda, but bureaucratic process shaped outcomes.
4. **Uneven responsiveness**: Some demands, like a unified Punjabi Suba, took **over a decade to materialize despite sustained agitation**, showing the state's pace was not simply dictated by street pressure.

Linguistic reorganization was substantially, though not solely, a **democratic victory of popular will over administrative caution** and proves that Indian federalism accommodates grassroots pressure more often than it resists it.

Q13.The model of planned economy was adopted in India to address the regional imbalances left behind by colonial rule. Comment

Answer

Colonial rule produced a **dualistic economy**, with modern infrastructure & industries concentrated in select regions while large parts of rural & resource-rich India remained underdeveloped. Hence, after independence, India adopted **planned development to pursue rapid growth alongside balanced regional development**.



Planning as an Instrument to Correct Regional Imbalances

1. **Industrial Dispersal:** Public-sector investment was deliberately located beyond existing industrial centres; **Bhilai, Rourkela & Durgapur steel plants** helped create industrial bases in relatively less-developed regions.
2. **Infrastructure Equalization:** Plans prioritised **irrigation, power, roads & transport** in backward regions; **Bhakra-Nangal project** supported agricultural and industrial transformation in northwest India.
3. **Backward-Region Targeting:** Planning Commission's **1969 Identification of Backward Areas report** proposed objective criteria and fiscal incentives for industrialisation in backward regions.
4. **Minimum Basic Services:** Planning increasingly shifted from merely expanding output towards **equitable access to education, health, housing & rural infrastructure; Minimum Needs Programme** under Fifth Plan reflected this approach.
5. **Targeted Regional Assistance:** Special programmes & central assistance were directed towards backward districts and difficult regions; **Backward Regions Grant Fund (BRGF)** was introduced in 2006 to address infrastructure and development deficits.

6. **Balanced Agricultural Development:** Planning sought to spread Green Revolution benefits beyond the north-west; **Bringing Green Revolution to Eastern India (BGREI)** covered seven eastern States, raising their rice output from **45.65 MT to 57.18 MT between 2009–10 and 2017–18**.

Limits of Planned Economy in Removing Regional Imbalances

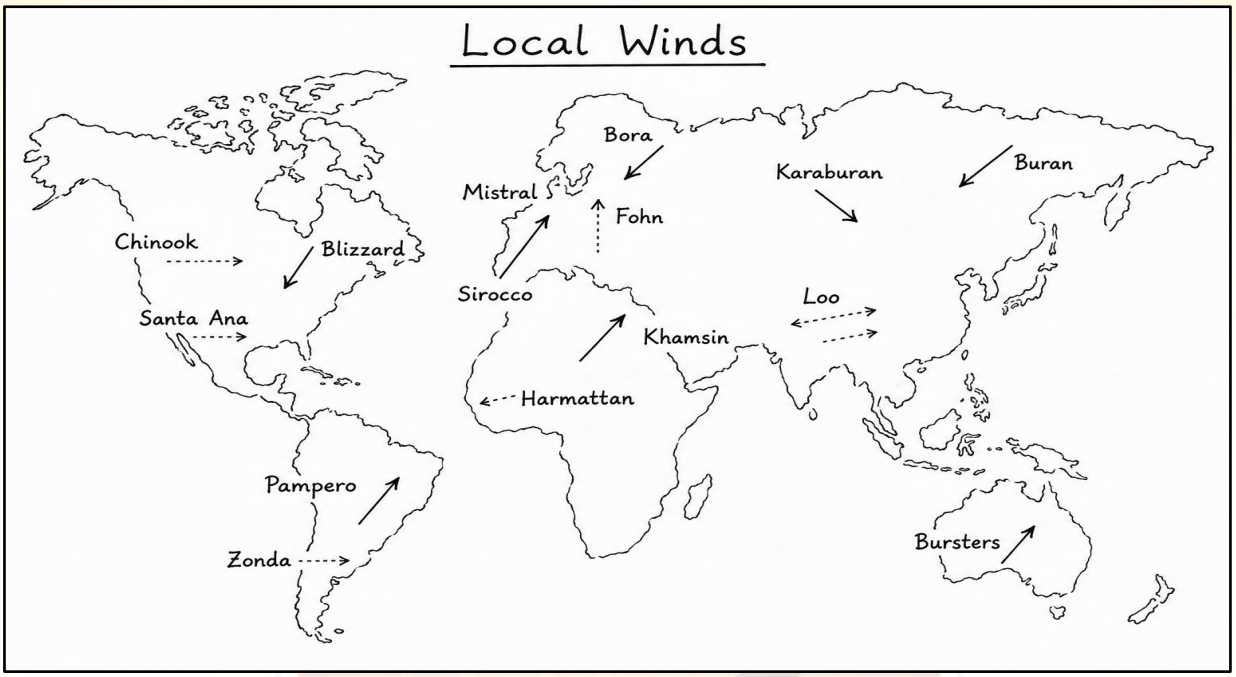
1. **Persistent Inter-State Gaps:** Planning reduced disparities but did not ensure sustained convergence; **Bihar & Jharkhand continue to lag behind Maharashtra & southern States in per-capita income**, reflecting persistent spatial inequality.
2. **Uneven Industrialisation:** Public investment could not overcome locational disadvantages; **Jharkhand, Bihar & Odisha** continued to lag behind industrialised States such as **Maharashtra, Gujarat and Tamil Nadu** in attracting diversified private investment.
3. **Unequal Agricultural Gains:** Green Revolution initially benefited **Punjab, Haryana & western U.P.** far more than rain-fed regions of **eastern & central India**, creating uneven agricultural transformation.
4. **Resource–Development Paradox:** Resource abundance did not guarantee prosperity; **Jharkhand, Chhattisgarh & Odisha** continued to contain relatively backward regions despite substantial mineral resources; **Eleventh Plan** explicitly noted this paradox.
5. **Intra-State Disparities:** Planning also failed to eliminate regional pockets of deprivation within developed States; the Twelfth Plan identified **Vidarbha in Maharashtra, KBK in Odisha & Bundelkhand in Uttar Pradesh**, alongside tribal areas of Jharkhand and Chhattisgarh.
6. **Geographical Constraints:** Himalayan & North-Eastern regions faced persistent development disadvantages due to terrain, connectivity and infrastructure deficits; **Twelfth Plan** specifically highlighted uneven development across **Nagaland, Mizoram, Arunachal Pradesh, J&K, Himachal Pradesh and Uttarakhand**.

Thus, planned economy was indeed conceived as an instrument of balanced regional development, but its success was partial. The lesson from India's planning experience is that public investment can create foundations of regional convergence, but sustained convergence requires strong institutions, human capital, connectivity & locally responsive governance.

Q14. Compare the Loo, Chinook and Foehn winds with respect to their regions of prevalence, their nature and climatic impacts.

Answer

Local winds are **regional-scale winds** shaped by local temperature, pressure and topography. Loo, Chinook and Foehn exemplify such winds, differing in regions, characteristics and climatic impacts.



Comparison of Loo, Chinook and Foehn winds

Basis	Loo	Chinook	Foehn
Nature	**Hot, dry, dusty local wind**. - Summer afternoon wind - Very high temperature - Low humidity	**Warm, dry downslope wind** - Adiabatically heated - Rapid temperature rise - Called **"Snow Eater".**	**Warm, dry downslope wind** - Adiabatic warming - Develops on Alpine leeward side - Gusty and dry
Regions of Prevalence	**Northern & north-western India** - Indo-Gangetic Plains. - Rajasthan, Punjab, Haryana, Delhi, U.P.	**Eastern slopes of Rockies**. - Western Canada. - Great Plains of USA	**Leeward slopes of Alps** - Switzerland, Austria, southern Germany
Climatic Impacts	1. Intensifies pre-monsoon heatwaves across northern India, leading to	1. Can cause a rapid rise in temperature within hours, thus	1. Produces unusually warm and dry conditions

	extreme heat. 2. **Causes a drying effect;** thus, a sharp fall in humidity increases evapotranspiration. 3. Causes soil-moisture loss and crop/vegetation stress **(Agricultural stress).** 4. Carries dust, reducing **local visibility** and worsening thermal discomfort. 5. **Human impact:** Heatstroke and dehydration become common during intense spells.	leading to **winter warming**. 2. It accelerates snowmelt and reduces winter snow cover, **known as snow eater.** 3. Exposes pasture and provides temporary relief from severe winter cold. 4. Sudden snowmelt may increase **local runoff.** 5. **Hazards:** Rapid thawing can increase **avalanche risk and damage vegetation.**	north of the Alps **(leeward warming).** 2. Rapidly melts **Alpine snow** and shortens snow-cover duration. 3. **Benefits agriculture** as it can extend growing/ grazing conditions in Alpine valleys. 4. **Hazards**: Rapid snowmelt and strong gusts may increase avalanche and wildfire risk.

"Local winds, regional consequences', though limited in spatial extent, winds like the Loo, Chinook and Foehn significantly shape regional climate, agriculture and livelihoods, highlighting how seemingly local atmospheric processes can produce far-reaching environmental and socio-economic impacts.

Q15. Analyze the role of satellite-based technologies in achieving climate-smart agriculture and food security in India.

Answer

For India, where nearly **60% of net sown area is rainfed and 310 agricultural districts** are **climate-vulnerable**, meeting the food needs of over **1.4 billion people** requires Climate-Smart Agriculture centred on productivity, resilience and mitigation, increasingly enabled by satellite intelligence.

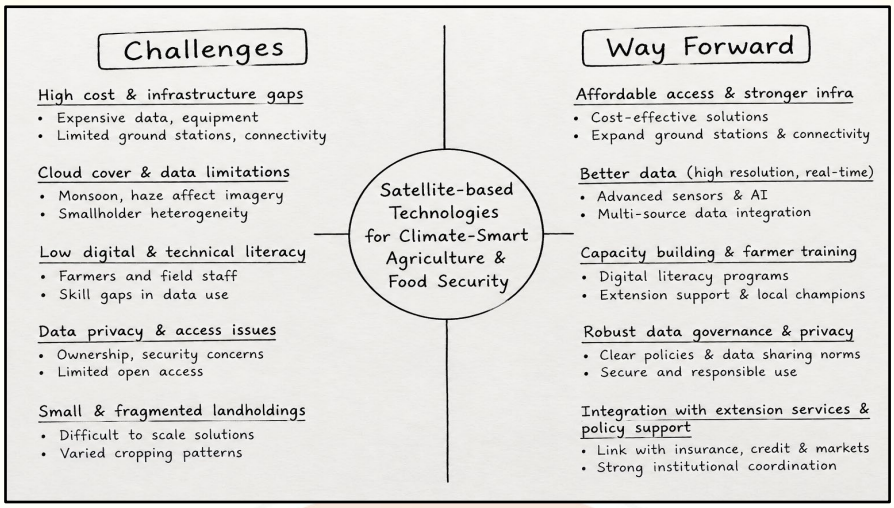
Role in Achieving Climate-Smart Agriculture

1. **Anticipatory Climate Adaptation:** Satellite observations identify emerging **agro-climatic risks,** enabling adaptation before productivity declines.
    a. **Example: Earth-observation/GIS mapping** can guide flood- and salinity-resilient cropping like **Kuttanad rice in Kerala**.
2. **Climate-Smart Crop Choice:** Satellite mapping of crops, soil and water supports **climate-suitable crop diversification**.
    a. **Example: Krishi-DSS** maps cropping patterns, supporting **millets/pulses** in drought-prone areas.

3. **Drought Resilience Planning:** Integrating rainfall, soil moisture, vegetation and water-storage data enables **targeted irrigation and contingency cropping**.
    a. **Example: NADAMS/SAC-ISRO Drought Geoportal** integrates these indicators for agricultural drought monitoring.
4. **Extreme-Weather Resilience:** Near-real-time imagery detects **floods, hailstorms and vegetation stress**, enabling rapid crop recovery.
    a. **Example: MNCFC remote-sensing system** generates flood-inundation and hailstorm-impact maps; ISRO mapped major **2025 flood-affected areas**.
5. **Farm-Level Risk Intelligence:** Satellite data identifies **crop- and farm-specific damage**, improving localised disaster response.
    a. **Example: CROPIC under PMFBY** uses time-series, geotagged crop photographs for near-real-time damage assessment.
6. **Resilient Cropping Intensity:** Satellite mapping identifies **underutilised land and seasonal fallows**, enabling climate-suitable second crops.
    a. **Example:** ISRO supports **post-Kharif rice-fallow intensification** under the **National Food Security Mission**.

Role in Achieving Food Security

1. **Production Availability:** Pre-harvest acreage, crop-condition and yield intelligence supports **procurement, stocks and food-availability planning**.
    a. **Example: FASAL** uses multispectral and SAR data to forecast **11 major crops across 20 States**.
2. **Productivity Enhancement:** Satellite monitoring identifies **spatial yield variation and crop stress**, enabling targeted interventions.
    a. **Example:** ISRO generates **national rice and wheat yield estimates** and State-level soybean and cotton maps.
3. **Production Efficiency:** Crop mapping improves targeting of **irrigation, fertilisers and extension**, reducing resource leakage.
    a. **Example: CROP framework** provides all-India in-season crop-sown and harvested-area mapping across **three crop seasons**.
4. **Need-Based Production:** Geospatial mapping identifies **crop suitability, fallows and regional production gaps**, enabling agro-ecologically appropriate production.
    a. **Example: SUFALAM** and post-Kharif rice-fallow mapping support additional **pulses/oilseeds** production.
5. **Supply-Price Stability:** Advance drought and production intelligence enables **buffer-stock management, procurement and imports**, reducing price shocks.
    a. **Example: FASAL and NADAMS** connect production forecasts with emerging **climate stress**.
6. **Farmer-Income Stability:** Objective crop-loss assessment protects farmers' capacity to finance **subsequent cropping cycles**.
    a. **Example: YES-TECH under PMFBY** uses satellite-based yield models for Gram Panchayat-level assessment; **CROPIC** validates localised crop damage.

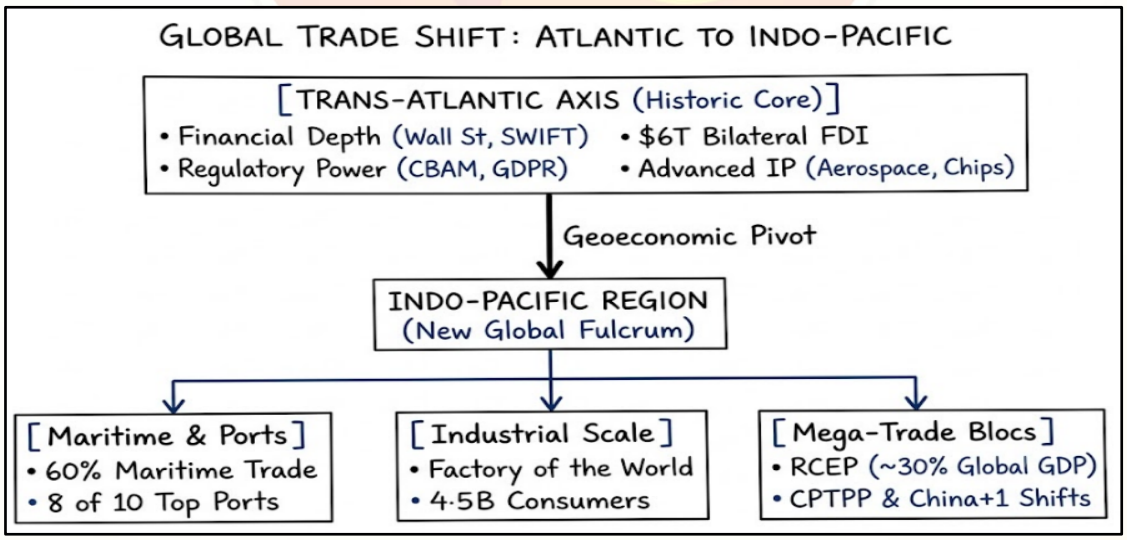


Satellite technology creates an **"observe → predict → adapt → produce → distribute"** chain: it converts climate and land intelligence into locally appropriate production decisions and converts production intelligence into more stable, affordable and available food supplies.

Q16. "The centre of global trade is gradually shifting from the Atlantic region to the Indo-Pacific region." Examine this statement.

Answer

Global economic gravity has decisively shifted from the trans-Atlantic corridor to the Indo-Pacific, powered by **Asian manufacturing scale, mega-regional trade architectures, expanding demographic consumption,** and high-density maritime trade corridors.



Factors Driving the Shift to the Indo-Pacific

1. **Maritime Trade Dominance**: The Indo-Pacific carries over **60% of global maritime commerce** and **50% of container traffic,** with the **Strait of Malacca** alone handling over **25% of global seaborne goods**.
2. **Global Port Superiority**: Reflecting volume migration, **9 of the world's 10 busiest container ports** (e.g., Shanghai, Singapore, Ningbo-Zhoushan) are located in the Indo-Pacific, overtaking traditional Atlantic hubs like Rotterdam.
3. **Mega-Regional Trade Blocs**: The **RCEP** (encompassing nearly **30% of global GDP and population)** and **CPTPP** anchor the regional trade architecture, outperforming stalled trans-Atlantic pacts.
4. **Manufacturing Scale & China+1**: **East Asia, ASEAN, and India** form the **world's primary industrial workshop**, reinforced by supply-chain diversification and an integrated production network.
5. **Rising Demand-Side Gravity**: Rapid middle-class expansion across India and Southeast Asia provides a consumer base of over **4.5 billion people**, converting the region from an assembly hub into a premier consumption destination.
6. **Eastward Energy Realignment**: More than **80% of China's crude imports** now transit eastward across the Indian Ocean through **Strait of Mallaca** to sustain industrial expansion.

Counter-Perspective: Enduring Structural Atlantic Strength

1. **Financial Market Depth**: Wall Street and London dominate global liquidity, with over **80% of cross-border trade invoicing** settled in **US Dollars and Euros via SWIFT**.
2. **Reserve Currency Leverage**: The US Dollar's status as the **global reserve currency** gives Atlantic institutions structural control over **trade financing, liquidity lines, and sanctions.**
3. **Deep Bilateral FDI Integration**: US–EU cross-border **FDI stocks exceed $6 trillion,** anchoring the world's most deeply integrated corporate value chains.
4. **High-Value IP and Services Hegemony**: While Asia leads in assembly, the Atlantic retains near-monopoly control over high-margin inputs: **semiconductor architecture, biopharmaceuticals, aerospace, and advanced enterprise software**.
5. **Global Regulatory Power (Brussels Effect)**: Atlantic regulatory instruments like the **EU Carbon Border Adjustment Mechanism (CBAM)** and GDPR set global compliance benchmarks that Indo-Pacific exporters must adopt.
6. **Chokepoint and Geopolitical Vulnerability**: Unlike the stable Atlantic corridor, the Indo-Pacific faces systemic friction, including the **South China Sea disputes, the Taiwan Strait flashpoint, and the Malacca Dilemma**.

While the Atlantic maintains financial, regulatory, and technological primacy, the **Indo-Pacific now drives physical trade, energy, and consumption,** making secure, open sea lines essential for India's long-term economic security.

Q17. Analyze the major drivers of human-induced land-use changes in India and their geographical consequences.

Answer

Human-induced land-use change **reflects the changing relationship between development and land**, as agriculture, urbanisation, infrastructure and resource extraction continuously reshape India's geographical landscape.

Major drivers of land-use change

1. **Urbanisation and peri-urban expansion:** Rising population, real-estate demand and urban sprawl convert **agricultural land, commons, wetlands and scrublands** into built-up areas.
    a. **Example:** NRSC's LULC Atlas shows **built-up area increased by 30.77% between 2005-06 and 2022-23**.
2. **Agricultural expansion and intensification:** Food demand, irrigation and multiple cropping alter **cropland, fallow and grazing-land patterns**.
    a. **Example:** Gross Cropped Area rose from **201.3 million ha in 2013-14 to 217.8 million ha in 2023-24**, while cropping intensity increased to **156.8%**.
3. **Infrastructure-led development:** Roads, railways, airports, dams and transmission corridors convert land and **fragment natural landscapes**.
    a. **Example:** Linear infrastructure through **Himalayan and Central Indian landscapes** creates habitat fragmentation and alters ecological connectivity.
4. **Mining and mineral extraction**: Open-cast mining replaces forests, agriculture and water bodies with **mines, overburden dumps and settlements**.
    a. **Example:** Studies of Central Indian coalfields found **forest losses of 7.3–17.6%** and water-body losses of **5–10%** due to mining.
5. **Industrialization and economic corridors**: Industrial clusters create demand for large contiguous land parcels, accelerating **agricultural-to-industrial and rural-to-urban conversion**.
    a. **Example:** Expansion around **Delhi-NCR and industrial corridors** has driven substantial peri-urban transformation.
6. **Changing agricultural economics**: Declining farm profitability, water stress and changing market demand encourage conversion of agricultural land towards **non-farm uses or different crops**.
    a. **Example:** India's arable/agricultural land share declined from **66.7% in 1950-51 to 58.6% in 2023-24**.
7. **Tourism and recreational development**: Resorts, roads, second homes and recreational infrastructure transform **mountain slopes, forests and coastal landscapes**. (eg: **Himalayas and Western Ghats**)

Geographical Consequences

1. **Loss and fragmentation of natural habitats:** Conversion creates smaller, isolated ecological patches, disrupting wildlife movement and ecosystem connectivity.
    a. **Example:** Infrastructure and mining in **Central India** fragment forest landscapes and wildlife habitats.
2. **Changing rural landscapes:** Urban-industrial expansion converts productive agricultural land, particularly around growing cities.

   a. **Example:** NRSC found that **35% of new built-up area** during 2005-06–2022-23 came from identified wasteland and agricultural categories.
3. **Altered hydrological regime:** Concretisation and wetland loss reduce infiltration, increase runoff and aggravate urban flooding and groundwater stress.
   a. **Example:** Expansion of built-up areas around **Bengaluru, Chennai and Gurugram** has placed natural drainage and wetlands under pressure.
4. **Soil degradation and land degradation:** Deforestation, intensive cultivation, mining and overgrazing accelerate erosion, nutrient depletion and desertification.
   a. **Example:** Coal-mining landscapes of Central India show substantial increases in **land-degradation vulnerability** with mining expansion.
5. **Micro-climatic changes**: Vegetation removal and built-up expansion alter **albedo, evapotranspiration and heat storage**, modifying local temperatures **(e.g., urban areas)**
6. **Biodiversity and ecosystem-service losses:** Habitat conversion reduces **carbon sequestration, pollination, groundwater recharge and flood regulation**.
   a. **Example:** Conversion and fragmentation of **Western Ghats and Himalayan ecosystems** threaten ecological connectivity.

"Land is finite, but its competing demands are expanding." India therefore needs **integrated land-use planning** that directs development towards suitable spaces while protecting agricultural land, ecological corridors, wetlands and community resources.

Q18. Is caste disappearing in urban India? Illustrate your answer with examples.

Answer

Urbanisation has weakened traditional caste boundaries, but has not erased caste-based inequalities. The rise in cases under the **SC/ST (Prevention of Atrocities) Act from 45,995 in 2020 to 48,669 in 2024** in India, indicates that caste continues to shape social relations, albeit in transformed forms.

Caste Is Weakening In Urban Areas

1. **Occupational De-linking**: Skills increasingly replace hereditary occupations.
   a. **Example:** IT, services and gig work cut across caste occupations.
2. **Weaker Endogamy**: Education and workplace interaction expand matrimonial choice.(eg: **Rise in Inter -caste marriages)**
3. **Urban Social Mixing:** Common workplaces, universities and public spaces **dilute purity-pollution barriers.**
   a. **Example:** Metros and corporate workplaces enable routine cross-caste interaction.
4. **Growing Class Identity**: Income and profession increasingly shape status alongside caste.
5. **Upward Mobility**: Education and reservation weaken inherited socio-economic positions.
   a. **Example**: Growing **SC/ST/OBC professional middle classes**.
6. **Weaker Social Control**: **Jati institutions** exercise less authority over urban individuals.
   a. **Example:** Constitutional rights increasingly supersede customary restrictions.

Yet Caste Persists in New Forms

1. **Matrimonial Endogamy**: Caste remains influential in **spouse selection.**
    a. **Example**: Even in metros, 49% Jeevansathi users retained mandatory caste preference.
2. **Housing Segregation**: Caste influences access to urban housing.
    a. **Example**: Ahmedabad, 2025: Dalit buyer alleged flat denial after caste disclosure.

Nature of the Transformation

Traditional Caste		Urban Caste
Hereditary occupation	→	Network-based employment
Physical untouchability	→	Social/spatial exclusion
Village segregation	→	Housing segregation
Jati panchayat	→	Caste associations/networks
Ritual hierarchy	→	Status/class inequality
Family-controlled endogamy	→	Matrimonial filters
Visible discrimination	→	Subtle/informal discrimination

3. **Campus Discrimination:** Modern education has not eliminated caste prejudice. (eg: **UGC complaints rose 173 (2019–20) to 378 (2023–24)).**
4. **Network-based Advantage:** Caste networks provide jobs, business links and **social capital.**
    a. **Example:** Community-based professional and business networks.
5. **Associational Caste**: Traditional jati organization assumes modern institutional forms.
    a. **Example: Patidar community** organisations in urban Gujarat.
6. **Subtle Exclusion:** Explicit untouchability shifts towards indirect discrimination.
    a. **Example:** Surname, food habits and **"community preference"** in housing.

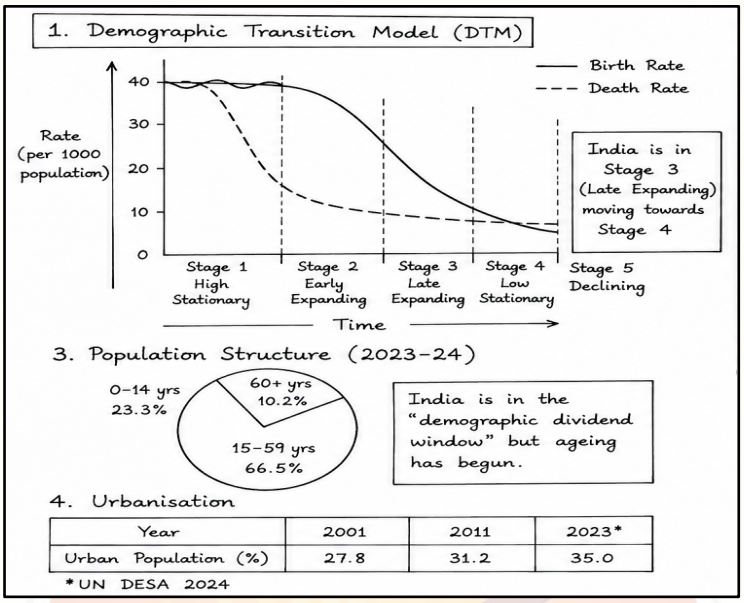
Urbanisation is producing a metamorphosis, not disappearance, of caste—from visible ritual hierarchy towards subtler inequalities embedded in marriage, housing, networks and opportunities.

Q19. Critically examine the challenges of demographic transition in contemporary India.

Answer

India is experiencing an **uneven demographic transition**, from a young, growing population towards lower fertility and an aging population, with States moving through these stages at different speeds.

Demographic Transition in Contemporary India.



Challenges of India's demographic transition

1. **Uneven transition across States:** Fertility has fallen rapidly in southern and some western States, while several northern States remain relatively younger.
    a. **Example:** **Bihar's TFR (2.8)** remains significantly higher than **Kerala's (1.5)**, creating divergent demographic needs.
2. **The "demographic dividend" is not automatic**: A large working-age population becomes an advantage only with productive employment, skills and health.
    a. **Example:** The **Economic Survey 2024-25** highlighted the need to create around **78.5 lakh** non-farm jobs annually to absorb the growing workforce.
3. **Ageing and dependency burden:** Falling fertility and rising longevity are gradually increasing the elderly population, especially in early-transition States.
    a. **Example**: **UNFPA's India Ageing Report 2023** projects India's elderly share to reach nearly **20% by 2050.**
4. **Feminisation of ageing:** Women generally live longer and face greater economic vulnerability due to lower labour-force participation, unpaid care work and weaker asset ownership, increasing care and social-security needs.
5. **Pressure on health and social-security systems:** Demographic ageing shifts demand from **maternal-child health towards NCDs, geriatric care and long-term care**.
    a. **Example:** India's growing burden of diabetes, cardiovascular diseases and dementia requires stronger primary and geriatric healthcare.

6. **Migration and regional imbalance**: Uneven demographic opportunities encourage migration towards economically advanced States like Maharashtra, Delhi-NCR and Gujarat, creating pressure on **urban housing and services.**
7. **Gender and demographic imbalance**: Son preference persists despite fertility decline, creating skewed sex ratios in some States.
    a. **Example**: **NFHS-5 recorded SRB of 893 in Haryana and 891** in Rajasthan, against **929** nationally.
8. **Political economy of demographic ageing:** Early-transition States face faster ageing, raising concerns over representation and fiscal fairness.
    a. **Example:** The 16th Finance Commission reduced demographic-performance weight from **12.5% to 10%**, reflecting concerns over penalising States for successful fertility reduction.

Key Demographic Indicators (Recent)

Indicator	1991	2001	2011	2021*
Crude Birth Rate (per 1000)	29.5	25.8	21.5	16.4
Crude Death Rate (per 1000)	9.8	8.0	7.0	6.4
Total Fertility Rate (Children per woman)	3.4	3.1	2.4	2.0
Life Expectancy at Birth (Years)	58.1	62.7	66.8	70.2
Infant Mortality Rate (per 1000 live births)	87	68	44	28
Population (Crore)	84.6	102.9	121.0	136.6*

Way Forward

1. **Integrate education, skilling, nutrition and healthcare** to convert the large working-age population into a productive demographic dividend.
2. Expand **crèches, safe transport, flexible work** and women-focused skilling to raise female workforce participation.
3. Strengthen **geriatric healthcare, pensions** and long-term care to prepare for the projected rise in India's elderly population.
4. Adopt **State-specific demographic strategies,** aligning employment, welfare and healthcare with divergent fertility, ageing and migration patterns.
5. Ensure **portable social security,** affordable housing and basic services for migrants, while promoting reskilling and flexible work for healthy ageing.

India must move from merely **"managing population numbers"** to **managing demographic change**, converting its youth advantage into productive employment while preparing institutions for an ageing and increasingly diverse society.

Q20.Evaluate the impact of globalization on Indian youths with reference to social, political, economic and cultural spheres.

Answer

Globalisation has widened Indian youths' exposure to **global markets, ideas, technologies & cultures**, but its gains remain uneven. It has expanded aspirations and opportunities while also creating **precarious work, social pressures, political polarisation & cultural homogenisation**.

Impact of Globalisation on Indian Youth

1. Social Sphere

Positive Impacts	Negative Impacts
Global exposure broadens aspirations for education, careers and lifestyles; **MOOCs such as SWAYAM/Coursera** expand access to global learning.	Individualisation, urban migration & career mobility can contribute to **nuclearisation & reduced inter-generational interaction**.
Exposure to global debates has strengthened youth aspirations for **gender equality, individual autonomy and dignity**.	Social-media comparison, competitive lifestyles and unrealistic success narratives can intensify **anxiety, loneliness and aspiration stress**.
Digital connectivity enables interaction beyond caste, region and nationality, fostering **cosmopolitan identities**.	English proficiency, digital access and quality education determine who benefits, creating an **aspiration–opportunity gap** between urban and disadvantaged youth.

2. Economic Sphere

Positive Impacts	Negative Impacts
Globalisation expanded **IT-BPM, Global Capability Centres & remote work**, creating high-skilled opportunities.	Gig work offers flexible entry but leaves workers vulnerable to income and social-security gaps; ILO–NCAER study finds women remain underrepresented due to digital-skill, mobility and safety barriers, despite gig workforce projected to reach **23.5 million by 2029–30**
Global capital and digital markets have expanded youth entrepreneurship; **2.23 lakh+ DPIIT-recognised startups had generated 23.36 lakh+ direct jobs by March 2026.**	External recessions, outsourcing shifts and geopolitical disruptions can affect employment in globally integrated sectors.
Overseas employment expands **income, skills and global exposure**; India received a record **USD 135.4 billion in remittances in FY25**, with rising contributions from **skilled & professional workers**.	**AI & technological change** threaten routine and entry-level jobs, increasing the need for continuous reskilling.

3. Political Sphere

Positive Impacts	Negative Impacts
Youth increasingly engage with global issues such as **climate justice, human rights and gender equality**; Fridays for Future reflects this influence.	Global digital platforms facilitate rapid circulation of **fake news & manipulated information**.

Social media lowers the cost of political expression, mobilisation and grievance articulation; platforms such as **MyGov** facilitate citizen engagement.	Algorithmic echo chambers & confirmation bias can reinforce **ideological divisions** and radicalisation.
Global exposure strengthens demands for **transparency, accountability, privacy & participatory governance**.	**Hashtag activism** can sometimes substitute sustained engagement with institutions and public policy.

4. Cultural Sphere

Positive Impacts	**Negative Impacts**
Youth combine global and Indian influences; **Indo-Western fashion, fusion music and globalised Indian cuisine** exemplify glocalisation.	Global brands and standardised lifestyles can weaken the appeal of **local crafts, folk traditions & indigenous cultural practices**.
OTT & social media enable young creators to reach **national & international audiences**.	Brand consciousness and global advertising encourage **status-oriented consumption** among sections of youth.
Globalisation is increasingly two-way; **Yoga, Indian cuisine, cinema & music** have acquired international audiences.	**English** increasingly functions as a language of **education, employment and mobility**, creating concerns about marginalisation of some regional and minority languages.

Globalisation has expanded opportunities, connectivity & choices for Indian youth, but its gains remain uneven, creating mobility yet precarity, openness yet anxiety, and cultural exchange yet homogenisation. Thus, its **impact is transformative but unequal**, requiring India to nurture youth who are **"globally competent but locally rooted"** for inclusive gains.

Abbreviation

1. MOOCs: Massive Open Online Course **2. IT-BPM:** Information Technology and Business Process Management
3. ILO–NCAER: International Labour Organization and the National Council of Applied Economic Research

VAJIRAM & RAVI

Institute for IAS Examination

A unit of Vajiram & Ravi IAS Study Centre LLP

1-B/7,Pusa Road, Old Rajinder Nagar,
New Delhi - 110060 • Ph.: 08062206330

Visit us at : www.vajiramandravi.com